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Original Communications.

*TWO CASES OF NEPHRECTOMY FOR SARCOMA OF THE KIDNEY IN CHILDREN, WITH OPERATIVE RECOVERIES.**

BY ROBERT G. LECONTE, M.D.,
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In reporting the two following cases, it is not my purpose to enter upon a systematic description of the disease and its operative technique, but rather to discuss with you the question of the advisability of operating in the presence of this very fatal condition.

For a general and most comprehensive consideration of this subject I cannot do better than refer you to a very excellent monograph by Dr. George Walker (*Annals of Surgery*, vol. xxvi, 1897, p. 529), which gives a critical review of the disease as gathered from 145 cases, and to which is appended the histories of 74 cases in which operation was undertaken.

CASE I.—John J., male, aged three years, an Italian, was admitted to the Pennsylvania Hospital March 5, 1900. Family history negative as to malignant growths. Father, mother, and all his brothers and sisters living and well.

Personal history: The child has always been strong, healthy, and well nourished. No previous illness. The present condition was first noticed two months ago, when the parents perceived that the abdo-

*Read before the Philadelphia Pediatric Society, April 8, 1902.

men was increasing in size. One month later they noticed that this abdominal enlargement was due to a large tumor growing from the right side. This tumor has steadily and rapidly increased in size, has been painless from the beginning, and has not interfered with walking or playing with other children. The urine has always seemed normal to the parents and has never suggested a trace of blood. The bowels are regular and the appetite good.

On admission the child was pale, but fairly robust looking, and well nourished. The abdomen was very large and distended, with many prominent veins on the surface. The whole of the right side from the ribs to the inguinal region was filled with an irregularly shaped tumor which extended to the left of the median line, and bulged out from the flank and from beneath the short ribs. This mass did not move with respiration, and could scarcely be moved by hand, owing to its broad and firm attachment in the flank. The abdominal wall moved readily over its surface. The cæcum and ascending colon lay under the border of the right rectus. In the anterior axillary line the liver dulness was continuous with the tumor, but in the right nipple line a colon note intervened between the two. The growth was irregular and firm, with the feeling of a tense cyst. There was no tenderness except from very firm pressure. The left flank was dull, as though a small amount of ascites was present. Hemoglobin 32 per cent, red blood corpuscles, 2,880,000; no leucocytosis. Uric acid, amber, flocculent; no albumin, no sugar; centrifugalization showed a few pale granular casts and red blood cells.

In four days the tumor had perceptibly increased in size, and operation was decided upon.

March 10 ether was administered and an incision made in the right semilunar line, extending from just beneath the ribs to a point below the level of the anterior superior spine of the ilium, a distance of about seven inches, on the distended abdominal wall. On opening the peritoneal cavity, the tumor immediately presented in the wound, covered by the posterior layer of the peritoneum, while along its inner border the appendix, cæcum, and ascending colon were reflected on to the surface of the growth. Beneath this peritoneal covering many large veins were discernible. The posterior peritoneum was then incised, one or two veins being wounded and requiring a ligature, and the cæcum and colon reflected from the surface of the tumor. An attempt was then made to deliver the growth through this abdominal wound, but the tumor was so large and so firmly and broadly attached in the flank that it could not be done. For the same reason an attempt to strip the tumor from its bed with a hand in the abdomen failed. The capsule was then incised between ligatures, and the contents of the growth (soft, friable, vascular tissue) removed, while an assistant was making pressure over the supposed position of the renal vessels. Very little hemorrhage resulted. With two fingers in the abdomen the kidney was peeled from the surrounding tissue by

touch, as the mass was still sufficiently large to obstruct all view. The renal vessels and the ureter were ligated *en masse* when the pedicle had been reduced to tissue half an inch in thickness, and the tumor cut off. Only then was it possible to have a view of the bottom of the wound, and I was surprised and horrified to find that I had exposed the vena cava for a distance of over two inches, and stripped it bare of its sheath in removing the tumor. The deep lumbar glands were so extensively involved with the new growth that they had pushed the cava forward, away from the spine, displacing the vessel an inch or more from its normal position, and rendering it very liable to laceration when the kidney was peeled from its bed. Good fortune alone saved me from this fatal error, for I imagined I was working well above the vessel.

As a complete removal of the sarcomatous lumbar glands was out of the question, and a partial one would only have subjected the child to the danger of a fatal hemorrhage, the operation was discontinued. The gauze pads, which had been walling off the general peritoneal cavity from the wound, were removed, and the parietal peritoneum from the inner side of the abdominal incision was stitched with a continuous suture to the peritoneum, reflected from the surface of the tumor. This procedure closed the peritoneal cavity, and made the wound throughout its breadth and depth entirely extraperitoneal. The incision was closed with silkworm-gut sutures, except at its lower angle, where iodoform gauze packing was introduced to prevent excessive oozing from the ragged cavity left behind.

Although the loss of blood had been very slight, the shock to the patient was considerable. Reaction, however, was good, and the child's temperature was soon above normal. The temperature continued to rise, and by the third day it touched 105.6°. The pulse was very rapid, weak, and running, but it responded well to free stimulation with strychnine and whiskey. The bowels had moved, the abdomen was comparatively flat, and there were no signs of peritonitis. The gauze packing was removed and the cavity washed out. One week after operation his condition was satisfactory, temperature normal, but there was a slight discharge from the lower angle of the wound. On the tenth day the stitches were removed, and the wound looked well healed. On the twentieth day the patient was up, happy, and comfortable.

He was seen six weeks after operation, when his condition was excellent, the cicatrix was firm, and there were no demonstrable signs of recurrence present.

Five or six months later he was again seen, this time at the Orthopedic Hospital. I am a little uncertain about the date, for no record was made of the case. At this time a large local recurrence was present, which extended for the most part toward the pelvis, had invaded the abdominal wall, and overlapped the crest of the ilium to the gluteal region. The child was much emaciated, very anemic, and was suffering great pain. Since then I have been unable to trace the family, but I am sure the child could not have survived longer than a few weeks.

No descriptive records of the tumor were made at the time of its removal. The weight was about three pounds. I am indebted to Dr. Longcopf for the following microscopical description, made two years after the removal of the growth:

"Almost the entire parenchyma of the organ is replaced by new growth. Here and there, however, are a few long tubules lying in connective tissue, and occasionally a small portion of the cortex is found with much interstitial connective tissue and atrophied tubules. The greater portion of the sections is composed of large spaces filled with round or oval cells. Many of these spaces are completely filled with the cells, while others show a necrotic center, or are traversed by connective tissue bands. Most of them contain blood-vessels. Sometimes the cells are packed closely together without definite arrangement, and sometimes they form irregular bundles. The nuclei are oval and stain rather palely. Karyokinetic figures are numerous. Besides these sarcomatous masses there is a second definite and distinct variety of growth. It is composed of columnar cells which appear in a definite adenomatous arrangement, and are found lying both amongst the sar-

comatous areas and in small unmixed masses. These cells occasionally cover connective tissue trabeculæ, but for the most part the connective tissue is absent.

"In many places the stroma cells of the organ assume an embryonic form of connective tissue and gradually merge into the dense sarcomatous masses. In other places the stroma is represented by a loose network of adult connective tissue in which are found many cells similar to the sarcoma cells.

"Diagnosis: Adenosarcoma of kidney."

CASE II.—Ida D., white, female, aged 2½ years, born in Philadelphia, was admitted to the Children's Hospital February 3, 1902.

Maternal grandfather died of Bright's disease, maternal grandmother of apoplexy; paternal grandfather of enlargement of liver, paternal grandmother of asthma. Father and mother both living and well. Mother has borne nine children and had one miscarriage. No history of tumor or tuberculosis in the family. The child has five older brothers and sisters living and healthy; two have died—one of marasmus and one of pneumonia. A baby sister six months old is living and well.

The child was born two weeks before term, with ophthalmia. Later she had marasmus, but became well and strong. No other illnesses. In January, 1901, a symmetrical enlargement of abdomen was noted, but did not seem to increase in size. In June the enlargement began to appear greater on the right side and to grow quite rapidly. It was then recognized that the abdominal enlargement was due to a tumor. The child did not suffer any pain. No hematuria or any other urinary symptoms were ever noticed. From July to October, 1901, the tumor did not seem to grow so fast, but there was an increase in its hardness. From October on the growth was more rapid. In November the girth of the waist was 23 inches. The bowels were constipated and the stools frequently streaked with blood. The urine was, in the judgment of the mother, normal in amount and in appearance.

On admission the child was pale and emaciated, with a poor appetite; no pain, and a very cheerful disposition. The chest was negative to examination. The abdomen was greatly distended by a large tumor which bulged out the right flank, and extended from the liver nearly to the pubis, and for two inches or more beyond the median line. The veins on the surface of the abdomen were numerous, large, and prominent. The tumor was smooth, firm and rounded, the abdominal wall gliding readily over it, moderately movable, painless except on deep pressure, and did not move with respiration. Its attachment in the flank was not nearly so firm or so broad as in the previous case.

The blood showed 70 per cent of hemoglobin, 4,800,000 red cells, and 9000 leucocytes. The urine was pale amber, cloudy, acid, specific gravity 1020, trace of albumin, no casts, no blood, and on centrifugalization a few leucocytes and renal cells.

For a week the child was carefully observed, while I debated whether to operate or not. During this time the growth did not perceptibly increase in size, the temperature ranged from 99° to 101°, the appetite was very capricious, the bowels sluggish, no trace of blood in the urine, and the disposition always cheerful and bright.

No metastatic deposits were demonstrable in the chest, or in any other portion of the body. Although the tumor was known to have existed for more than a year, its comparative mobility, together with its evident small attachment in the flank, made it possible to conceive that a thorough removal could be attempted with some hope of an ultimate cure. Accordingly, at the request of the parents, and with the agreement of my colleagues, I operated one week after admission.

Ether was administered, and an incision made in the right semilunar line similar to that of the previous case. The tumor was covered in part by the posterior layer of the peritoneum, and in part by the cæcum, appendix, and ascending colon. It was smooth and very firm to the touch. Many large veins were immediately beneath its peritoneal covering. After incising this peritoneal covering and ligating a few wounded veins, the tumor covered by its capsule was readily shelled from its bed and delivered through the incision. With the aid of retractors an excellent view was obtained of the bottom

of the cavity. The pedicle was approximately two inches broad, the deep lumbar glands were extensively involved, and, as in the previous case, had pushed the vena cava nearly an inch away from the bodies of the vertebræ in an outward and forward direction. The renal vessels and ureter were ligated *en masse* and the tumor cut off. The glandular involvement was so extensive that a complete operation was out of the question and was not attempted. The hemorrhage was slight, and only a small amount of blood was lost, yet the child's pulse began to fail rapidly after the removal of the growth, and the operation was quickly terminated by closing the wound with silkworm-gut sutures without drainage, no attempt being made to separate by suture the cavity left by the tumor from the general peritoneal cavity. The time of operation was about twenty-five minutes.

The temperature was 97.8° immediately after operation, but by the next day it had risen to 105°, with a pulse of 160, and respiration of 64. A few râles were noted in the chest, but no areas of impaired resonance. For a week the temperature varied from 101° to 103°, the cough and the râles in the chest persisted; and one naturally thought of small areas of catarrhal pneumonia, but the physical signs were negative for such a diagnosis.

On the fourteenth day the stitches were removed, and the wound was found entirely healed and firm. For the next four weeks the child remained under observation in the hospital, and her condition did not materially change. Her temperature was the same as before operation, varying from 99° to 101°; her cough persisted, but examination of the chest revealed only a few râles. Her appetite had improved a good deal, the bowels were regular, and she complained of no pain, but her disposition had entirely changed. She refused to talk, and looked upon every one with suspicion and almost dread. We concluded that there must be small metastatic deposits of sarcoma in the lung, too small or too central to give physical signs, about which a low grade of inflammation had been started by perhaps the ether, perhaps the exposure of the operation.

Six weeks after the operation she was taken to her home beyond the city limits, and I did not see her again. She immediately began to go down-hill, her cough became much worse, her appetite failed, weakness was progressive, until death intervened on March 27, forty-five days after operation. The mother thought she died of pneumonia, but no physician was called in to see the child.

The autopsy was made by Dr. Alfred Hand, Jr., who kindly furnished me with the following notes:

Autopsy, 1 P. M., March 29, 1902, forty-eight hours after death. Rigor mortis present. Emaciation marked.

Lungs: The left lower lobe is consolidated pretty generally with a bronchopneumonia. Both lungs contain many whitish nodules from one to ten millimeters in diameter; firm on section; no caseous, calcareous, or liquid change.

Thymus negative.

Pericardium normal.

Heart: Wall of right auricle contains half a dozen miliary nodes; otherwise negative.

Abdomen: Peritoneal cavity holds several ounces of embalming fluid. Peritoneal surfaces, both visceral and parietal, are studded with many minute white nodules. Omentum is adherent to abdominal parietes and to ascending colon, and contains large nodules. The spleen is large, dark, and of medium consistency; on its capsule are a few miliary nodules. The lower edge of the liver is five centimeters below the costal border; for an area on its upper surface five by ten centimeters the liver is sprinkled with miliary nodules, but none are seen within the organ on section. The left kidney is enlarged, but is otherwise normal. No vestige of right kidney can be found. Mesenteric glands are enlarged. A very large post-mortem intussusception is seen in the ileum. During reduction it is found to be double, two separate invaginations having occurred, and then the lower one having been drawn up around the upper. At the site of each one there was felt within the intestine a mass at first supposed to be a curd of milk, but on opening the intestine each was seen to be submucous; on section they resembled, microscopically, the sarcomatous nodules in the lungs. The pancreas and suprarenals were negative.

Owing to the incompleteness of the

methods of embalming, and the length of time which elapsed after death before the autopsy, it has been impossible to make a microscopic study of the organs.

The tumor removed during life measured 14x16 inches in circumference and weighed 2½ pounds. Microscopic examination of it showed in the section taken a typical picture of small round-cell sarcoma, with some renal tissue also present.

At the time of operating, several feet of small intestines, part of the colon, and omentum, and the surface of the liver, were seen and inspected, but showed no evidence of metastatic deposits owing to the decomposition of the body at the time of the autopsy. Dr. Hand was unable to observe either the relation of the vena cava to the lumbar spine, or the extent of the metastasis in the deep lumbar glands.

Before discussing the medical and surgical treatment in this disease, let me again call your attention to the fact that the vena cava may be greatly displaced from its normal relation to the bodies of the vertebræ. When the growth is large, and inspection of the bottom of the wound impossible, there is very grave danger of wounding this vein. I do not know that attention has been previously called to this point, but good fortune alone saved me from such a fatal error in the first case.

With drugs, good food, proper hygiene, etc., we may prolong the life of the patient a little and relieve the suffering to some extent, but such treatment will have no direct effect upon the ravages of the malignant growth. The disease leads invariably to a fatal termination. I have had no experience with the mixed serums, nor have I been able to find the report of any cases where it has been tried. The duration of the disease under medical treatment varies from seven weeks to two and a half years (I quote freely from Dr. Walker's paper), the average being about seven and two-thirds months. As a rule the younger the child the shorter the duration of the disease.

The knife may be used in these cases from three different standpoints: to save life whenever there is a hope for a radical cure; to prolong life; and to relieve pain and make death more easy. There is no question but that a fatal termination resulting from secondary deposits in the lungs or liver is less painful than one resulting from the direct extension of the primary growth.

In examining the seventy-four cases recorded by Walker, we find an operative mortality of 36.5 per cent. If, however, we eliminate the cases that were operated upon prior to 1890, and take only those of the last decade, when surgical cleanliness was more perfect, the mortality immediately falls to about 14 per cent, a figure which I judge should fairly represent the status of the operation to-day. The ultimate mortality in the cases that were followed to the end was 38 per cent, while 5.4 per cent represents the cases that have gone for more than three years in a condition of health and strength, without a demonstrable sign of recurrence. Twenty per cent of the cases survived the operation, but were not followed to the end, and the ultimate result is unknown. Many of these were observed for months before they were lost from view, some for more than a year, and when last seen the patients were well and free from recurrence.

Another interesting point in this table is the average duration of the disease before operation was undertaken. In those cases which proved immediately fatal, the average duration of the disease was 9.75 months; in those that ultimately died in which the histories are complete it was 5.8 months; and in the four cases that were cured it was 2.8 months. The combined average duration of life in all these cases was 16.75 months, while without operation the average duration was 8 months. Even with the high mortality of this table, the cases that were subjected to operation had an aggregate life of twice the duration of those cases that were treated medically.

From this evidence I should deduce the following conclusions:

1. With modern methods the immediate mortality of the operation should be reduced to 15 per cent, or even a little lower.

2. Operation should prolong the average duration of life, dating from the first symptom of the disease.

3. The percentage of cases that will go three years or more without a sign of recurrence—the so-called cures—will be very greatly increased, if the physician can make an early diagnosis and can be

assured of the fact that an immediate operation is proper and justifiable.

4. When the ultimate results are fatal, the operation relieves the suffering of the patient, and makes death less painful.

Twenty years ago cancer of the breast was considered an almost hopeless condition by both the physician and the surgeon. But how different are our views to-day, since surgery has proved that many cures can be effected when the disease is seen early and the removal is thorough.

Perhaps in the future the same brilliant results may be recorded for this operation, when the profession has concluded that the operation is justifiable, and gives a reasonable chance for a cure. At present the status of the operation is certainly very much better than the English opinion of it as voiced by Keith. He states that "in young children it is doubtful whether it is ever right to operate; indeed, such operations must be looked on as surgical possibilities rather than as operations of advantage to the patient." By way of retort Abbe might point with pride to two of his cases, one aged 14 months and the other 2½ years, both of whom were living and well at the end of three and a half and four years respectively.

*TWO CASES OF FISTULA IN ANO.**

By Joseph M. Mathews, M.D., LL.D.,
Professor of Surgery and Clinical Professor of Diseases of the Rectum in the Hospital College of Medicine, etc., Louisville, Ky.

Gentlemen—We have two extremely interesting cases to bring before you this morning, which I am anxious that you shall see in order that you may profit by them in your future practice.

I have said to you time and again that no rules which are laid down in books on surgery can be your guide in operating for fistula *in ano*. I had thought that I had shown you every character of fistula *in ano* during this session, but each case is an individual case, and you cannot well read the text-books and learn how to operate for this condition. I remember that Mr. Allingham, a great authority, says: "It requires more dextrous surgery to cure a bad case of fistula *in ano*" than any other surgical affection that he knows. If you do an operation, for instance, for the removal of an ovary, when you have removed it your operation is complete, you close the abdomen, and that ends it. In fistula, and especially in such cases as one of those I shall presently show you, the destruction of tissue is simply enormous, and the patient is rendered a perfect invalid for life, unless by a surgical operation we can cure him; yet I want to be positive in saying to you, do not promise too much in the first operation upon a case like the second one I will show you this morning, for it may be you will have to do two, and possibly three, surgical operations before you effect a cure. Now, I must qualify that in this way: inasmuch as you cannot be guided by directions laid down in text-books, I do believe if you will operate in the manner that we will this morning, you can promise a cure in ninety-eight out of every hundred cases of fistula, and I shall pay no attention whatever to such directions.

You will remember the books instruct you to introduce a grooved director into the external opening and follow it down to see if it goes into the bowel; if it does, then pull the end of the grooved director out of the anus, and then divide the tissues upon the director. These are the instructions usually given. I have said this will not cure one in fifty cases, which I am satisfied is true.

I have often made the statement that I pay no attention to finding the internal opening of a fistula. I want to elaborate that saying and demonstrate in these two operations the truthfulness of what I have said to you, that it makes no difference whether you find this opening before the operation or not, because when you do the operation you are sure to find it. No difficulty is experienced in tracing out every channel when the patient is under chloroform; therefore, why is it necessary to waste your time and foolishly say you will not operate because you cannot find the internal opening?

You know what are the three important things to do in operating for fistula: First, to lay open the main channel; secondly, to find all the additional channels; thirdly, to divide the bottom of the fistula. This will not do in the majority

*Clinical lecture delivered at the Gray Street Infirmary before the class of the Hospital College of Medicine.

of cases, because you will find that you will have to dissect away a great deal of tissue in most instances, therefore I seldom pay any attention to the so-called sinus; I may include the sinus in the dissection of tissue that I make. I would rather be certain that I had removed all indurated and infected tissue—tissue involved in the destructive process—and pay no attention to the so-called tracing of the sinuses, because if I remove all infected tissue I shall certainly remove all the channels or sinuses.

I remember operating upon a gentleman at one time who had possibly twenty sinuses running out into one buttock; I did not introduce a probe or a grooved director into a single sinus, but I made a circular incision around the buttock and carefully dissected that half of the buttock away. It was extensively diseased; there was necrosed tissue in every direction, all of which was included in my dissection, so of course I removed every sinus or so-called channel of the fistula.

Our first case to-day will teach you one important point that possibly I have not yet mentioned to you. In the majority of men, not so much in women, there is a little depression at the lower third of the sacrum, consequently near the coccyx, into which a probe can be introduced to the extent of perhaps a quarter of an inch. This is a congenital condition; it is there from birth, and I have often wondered if it were not a remnant of the monkey, where the tail originally hung! As long as it remains clean, as long as there is no disease present, it gives the patient no trouble; but you can see that by the accumulation of dirt in this depression, remaining there perhaps for years (the patient may wash his body as much as he pleases, and it is impossible for him to get the dirt out of this little depression), it proves to be a foreign substance, and after a while he will come to you and say he has a discharge from a little opening in his back. If you will now take a probe, it will be found that you can introduce it frequently to the extent of an inch or an inch and a half. Or it may be, as illustrated by one of the three cases of the kind I have seen this week, I could introduce a probe in this depression over the sacrum, starting at this congenital depression I have spoken of, and run it down into the buttock, and in another direction the probe extended down into the scrotum; consequently the sinus was fully ten inches in length, starting in this little congenital depression over the lower third of the sacrum.

In the first case upon whom we shall operate this morning the fistula started in this depression. It is well known that all fistulæ begin as abscesses. Here would seem to be an exception. This man does not give the history of having had an abscess; I questioned him about this, and he said no. But you can understand how the fistula originated by this depression filling with foreign matter, which, remaining for a long time, acted as an irritant, inflaming the part; the abscess may have been very small, or the ulcerative process alone, without constituting a real abscess, has burrowed down into the tissues and extended down into the buttock or up in the other direction. It extends in this case to the left, consequently into the buttock. In the majority of cases of this kind of fistula I have failed to find any communication with the bowel.

Now I want to make another point. All fistulæ do not communicate with the rectum; it is not every operation you do for fistula that you will have to divide the sphincter muscle, or pull the grooved director out of the anus; there are a number of fistulæ in this region which do not communicate with the rectum. I do not want to be so pronounced as to make you neglect examination while your patient is under chloroform to see whether there is a communication with the rectum or not, because this ought always to be done, and if so of course you must divide the sphincter muscle; but in the vast majority of cases of this character I find the fistula external to the sphincter muscle. Possibly it may be true in this case; I do not yet know, but we shall soon determine. I have never examined this man to find out whether it is a complete fistula, or whether it is simply external, whether it has an internal opening, or a communication with the bowel. If I were to talk this way even to some doctors they would say I had neglected my duty, that I did not know what kind of a fistula I had to deal with. I do not care particularly. Is it not quite sufficient evidence, when you can take a probe and introduce it into the external opening two or three inches, that the man has a fistula? What difference

does it make what character of fistula it is? I mean whether internal, external, or a complete fistula—you will ascertain that at the time of the operation. You are doing what is absolutely necessary for a cure for your patient.

When a patient with fistula comes to you and asks if you can cure him without a surgical operation, to be honest you will have to say you cannot, in the great majority of cases. The charlatan simply bolsters these patients up. He introduces tincture of iodine, carbolic acid, etc., down into the channels; a sufficient amount of irritation is thereby produced to cause the skin surface to heal over the channel, the charlatan gets the patient's money, and the patient is allowed to go. The channel soon reopens, and the patient then returns to you again wiser than he was in the beginning. I never temporize with these patients; if I find a channel into which a probe can be introduced two or three inches, I always tell them that a surgical operation will be required for their cure.

As to the proper surgical operation, there is but one, and that is the knife. Other means are simply temporizing. You can readily understand that you cannot get rid of an old callous sac or sinus in any other way except to cut it out. The burning process is not indicated here, when it is much more simple to trim the tissue away with knife or scissors.

Another thing that will often be asked is how long will it be necessary to keep the patient in bed after an operation for fistula. I have been surprised to know that a number of surgeons who operate for fistula *in ano* will keep the patient in bed as long as they are treating the wound. This is not necessary. It took me a number of years to find that out; but the wound heals just as well if you let the patient get up after dressing the wound, at the end of the first week. Let him get out into the fresh air, let him walk around or sit as he pleases; in this way his general health will be kept in better condition, and he will improve faster in both a general and local way. Therefore you can safely say you will not confine the patient to bed longer than a week; but of course he will not be well in this length of time by any means. They are surprised to know they will be allowed to get up and walk about at the end of a week, and it is a great comfort to them to be able to do this. One author makes the exception only in tuberculous fistula, stating that it is a bad plan to confine a tuberculous patient to bed. That is very true, but it is an equally bad plan to confine anybody to bed if he is able to get out.

For instance, here is a man who weighs 170 or 180 pounds; he is not sick, he simply has a local trouble, and after you remove this, simply because he has an open wound you certainly should not confine him to bed. Remember this in operating upon a patient for fistula *in ano*.

I want to say this to you, that the after-treatment of fistula is just as important as the operation itself—that is, to watch and see that the wound heals properly. Many times, especially in fat people, the buttock after free division will fall together, and you will have union by granulation, called union by third intention. If this is permitted, if the wound does not heal from the bottom, it is likely you will have a channel at the very bottom of the wound which will remain after the patient gets well. Therefore I would suggest that you always bear in mind that a wound of this character must heal from the bottom. Some surgeons advance the idea that you can bring these wounds together and have union by first intention; after a while I shall discuss that feature.

Case I.—This patient, a male, aged forty-three years, is in robust health, and weighs 180 pounds; family and personal history good. This is the case where the fistula commenced in the congenital depression of which I have spoken. I seldom use a probe in examining fistulæ; you can see the external opening; you feel the channel, and this makes the diagnosis without the use of a probe. I show you the congenital depression at the lower third of the sacrum. We find another opening lower down, and it probably communicates with the one above.

You should always have your patient profoundly under the influence of the anesthetic before you begin a surgical operation; it is less dangerous, and I may say that most of the accidents which have happened on the operating table have occurred before the patient was thoroughly under the effect of the anesthetic.

We find that this fistula extends downward and communicates with another

opening two inches below. In making our dissection we will ascertain the extent of the fistulous tracks, whether any of them communicate with the bowel, etc. I have divided the tissues over the main channel, and they are found hard, indurated, and tough. Other sinuses will be divided as encountered without the use of a probe or grooved director, and we will catch up the indurated tissue and cut it away. This having been done, we will make a search and see whether there is a communication with the bowel; I doubt if there is. We find a channel running down to the bowel just at the entrance, but not communicating with it. This channel must also be divided, else our operation would not be successful. After trimming away all indurated tissue, all flaps and edges of the wound, you observe we have an open wound leading down to the bowel but not entering it.

The operation having been completed, while the dressings are being applied, allow me to speak of the operation for fistula by simple incision in the effort to have the wound heal by first intention. Every once in a while an article will appear in some medical journal stating that this is possible; surely the man who writes such an article has never seen many cases of fistula. After we get through with the next case you will be satisfied that he has not had this character of fistula, at least, to deal with. As medical students you know it is necessary to get perfect apposition of the tissues to have union by first intention. If you operate for instance upon a case of harelip, you pare the edges of the wound and bring it together perfectly and suture it, and you have union by first intention. If you are going to operate upon a case of lacerated perineum, you will do the same thing; but when you have such an extensive surface of indurated, necrotic tissue which has to be removed, as is true in a bad case of fistula *in ano*, how are you going to get apposition? You have removed too much tissue to possibly bring the edges of the wound together and so appose them. Therefore I make the statement to you, and believe you will verify it after a while, that there is not one case in a hundred where you can risk drawing the tissues together, even admitting that it can be done. In other words, I believe you will scarcely ever be justified in attempting to do that operation, because you recognize that you can cure your patient by the method I have described and just practiced; but by attempting to get union by first intention you may fail to obtain a cure, and you cannot afford to take any chances. For instance, you have a main channel showing an external opening four inches from the anus in one buttock, and you are satisfied there is no other communicating sinus. You can introduce a grooved director and lay this freely open and curette or divide the bottom of it, then draw the wound together and suture it, and you would probably get union by first intention. Nobody denies that, but how many cases of this kind of fistula do you find? Here is a man in whom after we made a division of the main sinus for four inches we introduced a grooved director, and found that the sinus extended down three and a half inches further and communicated with the rectum. Suppose I had not found this additional sinus, and had drawn the edges of the primary incision together and sutured them. I would not have cured the patient—indeed, I would have done him no good; and to go further than that, I would say I had injured him. Therefore, I believe in radical operation in all cases of fistula, taking no risks.

Here is a pretty point in operating upon these cases: Suppose you have laid open the main channel and three other additional sinuses, and suppose there is one which runs in a certain direction, possibly you do not wish to divide the sphincter muscle for some reason, or go deeper into the perineum, or something of this kind, and you desist, leaving this sinus, touching it up, as it were, with some escharotic, believing possibly that it may heal. Now you cannot afford to do that. I have tried it time and again. The patient will get well of the wound you have made, healing will take place eventually, but the patient discovers that he has a slight discharge from the lower border of the wound. He comes back to you and states that he is in the same condition that he was before. Of course you know he is not, that you have cured him of two-thirds of his complaint, but you get no credit for it, because he says all he suffered from when he first came to you was a little discharge, no pain, which he has when he returns the second time, and

this discharge comes from the sinus which escaped you or you refused to lay open. Therefore I want to say again, and you will see the force of it before you have been long in practice, the more you cut these people the better they do, being certain that you freely open every sinus that exists so that it may heal from the bottom. The same statement will also apply to hemorrhoids. I have a patient now in this infirmary, a very prominent man, upon whom I operated for hemorrhoids; I concluded that inasmuch as I had gone two-thirds around the surface of the rectum, removing a mass of hemorrhoidal tumors, I would leave a space there, and that space has given me more trouble than the operation for hemorrhoids, because it took on an inflammatory nature and is now larger than any hemorrhoid he ever had. Now apply my saying, "The more you cut the better it is." If I had cut this portion off at the original operation, the patient would probably have had no further trouble. Do not be afraid to use the knife in operations for fistula *in ano;* I am almost tempted to say to you, do not expect to cure fistula *in ano* in any other way than by radical operation.

I have never demonstrated to you the method of operating for fistula by means of the elastic ligatures, because I have no faith in it. Mr. Allingham devotes a chapter in his book to the use of the elastic ligature in the cure of fistula, so it would look like there must be something in it. They say it is not necessary to confine the patient to bed; they say you do not use the knife, which is a great argument with the patient. Now this is very convincing, but when you come to examine into the merits and demerits of the case you will find that it is not true, that you will not cure your patient. If there is only one sinus and you introduce an elastic ligature and put it on the stretch, it may cut its way out after a time, and admitting that there is but one sinus your patient may get well. But if he has a single additional sinus he will not get well, and you have made quite a wound for nothing. Another disadvantage is that it requires three weeks' time for this elastic ligature to cut its way through. You accomplish in one minute by the knife what the ligature takes three weeks to do. Then is not the knife the simplest way of dealing with these cases? It is strange to me that the laity look with such horror upon the knife. They do not know the significance of what they say. The method of treatment by the ligature is simply temporizing; you run the risk of not curing your patient, when by the use of the knife you will cure him. But the argument is so strong that the patient will not be confined to bed, he will not be taken away from his business, he will be cured without the use of the knife, etc., that many people will want this method tried even if it does take three weeks for the ligature to cut through.

I would not advise you to use the elastic ligature, though of course there are cases where all of us have to do more or less as the patient desires. However, we have this comfort, that we do not assume any responsibility; we can say to the patient that we are not doing what we think best for him, that we are following his advice, therefore we do not take the responsibility. If it happens to be a case of fistula, you can say, "Probably this will cure you, and probably it will not; but if you will allow me to perform the operation which I prefer, I think it will undoubtedly be successful."

I wish to say a word about *insuring* a cure. Do not ever do that; it is the quack's method of doing business. You will have patients come to you and say: "Doctor, do you insure a cure?" I would say in response, "I insure nothing; I shall do the best that can be done for you if the case is entrusted to me, but I am not a quack; they (quacks) will insure you perfect success no matter what the conditions may be." Do not fall into the error of insuring anything; it smacks of quackery, and you do not want to even get on the border-line of it in deed or otherwise.

Then suppose you were to ask me what percentage of cases are cured of fistula by this method of radical operation by the knife. I would say ninety out of a hundred, and if they will give you a chance to do a second or third operation on the other ten you will likely cure five of these, or ninety-five out of a hundred. But do not criticize your brother doctor who has operated in a bad case of fistula, and the patient says six months or a year afterward that he is not cured. It may happen to you at any time. The profession is too much given to criticizing each other;

they say they do not mean it, but the patient does not know that phase of it. You do not know the conditions under which the doctor operated; he was present, you were not. You will often find in malpractice suits, that the suit was won against the doctor because of testimony which a certain doctor gave in opposition to the method that was practiced. For instance, in a crushing of the limb that occurred two years ago: you are brought before the court as an expert; you see two inches of shortening in the injured limb; and the patient is suing the doctor for malpractice because of this shortening. You may be led to testify that the patient should not have had this amount of shortening, that it was a bad job on the part of the other doctor. Now, what do you really know about it? Were you there two years ago when the patient's leg was crushed? The other doctor was. You see the result, but you do not know the condition the patient was in at the time. The other doctor may have gotten a splendid result for the condition with which he had to deal, and yet verdicts are often rendered against doctors because other physicians come in and testify in regard to things about which they really know nothing. Do not be guilty of this.

There is one thing certain, that you will never be sued for malpractice for operating upon a case of fistula or hemorrhoids. You do not know why? Suppose a woman were to threaten to bring suit against you under these circumstances; you can say to her: "All right, madam, you will have to come to the court-house and show your scars to the jury." I think you will escape malpractice suits in rectal practice.

CASE II.—This man is forty-seven years of age. This is the case in which I told you the whole buttock is involved. I have refused to operate upon the patient for three weeks because of the extensive inflammatory action and induration that existed. There is considerable induration yet, but the conditions are probably as favorable for operation as they are likely to be, therefore we will proceed with it.

In this case we will pay no attention to the rules laid down in books for operating for this disease. You can see that the right buttock is completely invaded. If I simply laid open these various channels the man would not get well. We must lay open and dissect away all the tissue that is involved in this destructive process. Therefore it is unnecessary to trace up the different channels, but for the sake of illustration I will introduce a probe and show you the various channels; then we will open these channels in order to cut and trim away the indurated and diseased tissue. We find this tissue bleeds extravagantly because it has been and is greatly inflamed. At first I had a suspicion that it might be sarcomatous, and we will do about the same operation that would be done if it were malignant—we will dissect it off. There are some very distinctive features which look like sarcoma. You see I make my dissection well beyond this infected tissue, the same as if operating for malignant trouble, because it has destroyed the parts as effectually as if it were malignant. I am paying no especial attention to accurately laying open the channels, but am simply dissecting the infected tissue away. You will observe the tissue has a bluish appearance, indicating necrosis.

I have so far neglected one thing—that is, to find the communication with the bowel if there be one. We will do so now. In trying to trace the channel leading into the bowel we find additional sinuses, all of which must be dissected out if we hope to cure the patient. Such extensive dissection leaves a large ugly wound, but this cannot be helped if we expect to obtain a good result. We find some dead tissue underneath what appeared to be healthy integument, which might have been easily overlooked. We find there is an opening into the bowel which runs very deep, and which will necessitate our dividing the sphincter muscle. We will curette this region thoroughly on account of the large amount of hard and necrotic tissue.

The operation having been completed, it will be observed that one buttock is practically destroyed, some of the channels or cavities extending down to the bone. In order to dress this wound, and get proper drainage, we had to do an immense amount of dissecting. This case aptly illustrates what a destructive disease fistula is in some instances.

You now see the extensive wound that we have made, which demonstrates to you how destructive this process may be. In your country or city practice this may

be the very character of case with which you will have to deal, and you can assure the patient that by this operation there is a strong probability that he will be entirely cured. If the condition is left to itself, the patient will become septic, his general health will be destroyed, and the local destruction will be enormous, as you see in this case.

Adequate drainage is necessary in these cases. We have cut away an immense amount of diseased tissue, and the wound will necessarily require four months in which to heal; but the patient will be able to walk about his room at the end of a week, notwithstanding he has this extensive wound.

This case gives you a better idea of what fistula *in ano* really is than any case we have had before you since the session began. You can understand the importance of dressing this wound correctly every day until it heals.

THE DIAGNOSIS AND PALLIATIVE TREATMENT OF REDUCIBLE AND STRANGULATED HERNIA.

By Thomas H. Manley, Ph.D., M.D.,
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With those who are concerned in the treatment of various accidents and ailments of the human body, there can be no question but that there is no common infirmity which is of greater interest than that which is generally designated rupture. When neglected, overlooked, or improperly treated, years of the greatest misery may ensue, the protrusion may go on enlarging, or may become strangulated and thus place life in peril.

The dominant conception of this infirmity is an erroneous one. The word "rupture" implies that something has been torn, or has given way, that some description of violence has been sustained. All this leads very far from a correct understanding of the causation of hernia. As a matter of fact, hernia is a veritable disease, often inherited, and the anatomical conditions found in this infirmity very generally have their beginning before the infant is born; they essentially consist of a lack of development. There is always a defect in the various apertures of the abdomen; later in life we have superadded visceral ptosis, a ligamentous relaxation, with a sagging downward of the organs of the abdomen, notably of the omentum and intestine.

In the male hernia is much more common than in the female; this is dependent on the peculiar anatomical conditions present, since the tendency to the infirmity is largely dependent on the descent of the testes. The gubernaculum testis carries down with it the various coverings of the abdominal wall; the testis being lodged in a pouch of the peritoneum, the infundibular process closing in above it. It is therefore obvious that not only are the external male organs of generation active factors in causation, but form a pathological complication of great importance, inasmuch as their diseases may complicate hernia and are frequently mistaken for it.

The predisposing factors, the essential elements, in hernia are never acquired. I am anxious to impress this with all possible emphasis, in order that many blackmailing schemes may be suppressed, that criminal and civil actors may be stamped out and justice obtained, when the foundation for extortion or persecution is based on the presence of a hernia, alleged to result wholly from violence. It goes without saying that I am not denying that hernia may follow from a penetrating wound of the abdomen, or that violence may bring into view a rupture, in various individuals; but here this element is only a subsidiary one in the evolution of the disease. This we can see best demonstrated among different classes of society—the cultivated easy classes, and the hardworking laboring classes. Among the latter we will discover rupture of any variety much less frequently than among the former.

It is always well to constantly remember that there are distinctions in various types of hernia in both sexes. In the first place, in early life it is much less frequent in the female, in advanced age more common; it is always more unmanageable with the female, and its dangers are greater because of the physiological demands upon the sex.

Hernia is usually recognized without difficulty; the situation, the periodic distention, the reducible tumor, the impulse on coughing, all combine to render diagnosis simple enough in the average case. But there are many pathological condi-

tions which may mimic it; moreover, a considerable number of cases are irreducible and complicated. Quite a few people wear trusses for herniæ that never existed; this is notably the case in the groin type, especially in the female.

Among the pathological conditions which may assume many of the common characters and be mistaken for hernia are inguinal adenitis, cystic tumors of the cord, lipoma, and varix. In certain types of complicated hernia exact diagnosis may be quite impossible without an exploratory incision; this is especially true in the presence of new growths, and in suppuration. A remarkable case illustrating the diagnostic difficulties came under my notice some years ago. A young married man suffered from hernia and bubo simultaneously. The bubo was of the chronic type. He called on a truss-maker, telling him that it come from a "strain," and that it was invariably larger every night. A truss was adjusted, but as it gave him great discomfort he went to his physician, who pronounced his case as suppurative adenitis. He then came to me. With this rather singular history I made a very careful examination, and found that he had an incomplete inguinal hernia, complicated with a large bubo. The case was treated by first widely opening the bubo; when this was well healed the hernia was relieved by the radical cure.

I have seen a vast varix of the femoral vein presenting many of the signs of hernia. In old irreducible cases, with cystic degeneration, or large effusion into the sac, detection of a hernia may be difficult. Hydrocele or spermatocele not infrequently complicates these extrusions. In infants and young children cystic tumors of the cord may sometimes be differentiated only with great difficulty. I have met with cases of myxomatous tumors in the canal of Nuck which had been trussed for years, under the supposition that hernia existed; and only recently I reported the case of a man sent into hospital with so many symptoms of strangulated hernia that preparations were made for immediate kelotomy, but on incision no hernia of any description was found; there was, however, a sarcoma of the cord and testis, the overlying intercolumnar fascia having been ruptured by violent efforts at taxis before he was admitted.

We may then affirm that while diagnosis is easy in some cases, in many it is very difficult, and that the so-called classic symptoms may often lead us to erroneous conclusions, since we may find impulse, a reducible tumor, and colicky pains, but no hernia.

Having been assured beyond doubt that our patient has hernia, the question of treatment must be considered. First, it becomes imperative that we be familiar with the natural course of hernial disease, that we may intelligently deal with it; and we will do well to recall what nature will often accomplish unaided when defects occur. We will note that with the advance of evolutionary processes in a cleft through the hard palate, by a deep arching the hiatus may spontaneously close; bow-legs tend to straighten; erections liberate the adherent prepuce; the feet only assume their proper shape after locomotion begins. So it is with the hernia of infants; though they nearly all tend to return after adult years are reached, their spontaneous cure is very common, provided only that the child is not permitted to walk too early.

Prosthetic support is called for when the infant's hernia is not very large, is painful, or tends to augmentation in volume. Trusses are badly supported in infants; they chafe and are easily soiled, and therefore, unless urgently called for, should be entirely dispensed with. Small quiescent ruptures should be left alone. The simpler the treatment in the infant the better; hence, unless there be some special and cogent reason, no operative procedure should be employed in a child under one year old.

As we pass from infancy to childhood we will observe a change in conditions; yet until the child has reached his fifth year the same general principles will hold as in infancy. We will yet note the same strong tendency to outgrow the infirmity, but the parents are apprehensive; moreover, we have now reached a stage when we resort with advantage to some mode of treatment that will effect a prompt cure of the hernia. We turn to the truss, which in spite of the ups and downs of surgical therapy yet occupies a place of first importance in hernia. Heaton, who claimed to cure the most inveterate cases, still insisted that after the cure his patient must wear a truss. Lucas-Championniére, a strong advocate of the operative

cure of hernia, insists that his patients must wear a *ceinture,* a sort of modified truss; and this useful support constitutes the main reliance of those advertising charlatans who reap a rich harvest by duping a gullible people.

Our first expedient, then, must be a well-fitting truss frequently repaired and removed.

A badly constructed truss is worse than none at all. It is greatly to be regretted that in our time, with a great reduction in every description of surgical instruments, trusses should yet remain at almost prohibitive prices to the poor. The truss will cure the vast majority of all herniæ in growing children. It should be removed invariably at night, and when the tumor fails to appear on rising in the morning it should be set aside, to be again occasionally adjusted on the reappearance of the rupture.

All humanity is exceedingly sensitive to any description of physical blemish; besides, the presence of a hernia in a growing lad may constitute an impediment to admission into the government service, or into various other important positions. Added to this, the annoyance and inconvenience of wearing a truss are most distressing. This brings us to the question of operative treatment, wherein the tissues of the body must be penetrated, by non-sanguineous or sanguineous methods. We should always give the child or youth the advantage of surgery, in properly selected cases—*i.e.,* those which show no signs of cure by retentive supports.

From the youth we pass to the adult. After the body is fully matured we will rarely observe the truss cure a hernia, unless it be one of recent date. In this class—and it includes a considerable number—we should first perseveringly apply the truss before we urge more radical methods.

Surgical methods may be divided into two classes, viz., the tentative and the radical. The former will suffice in all simple non-complicated herniæ, especially those of the inguinal type, or hernia in young subjects. The aim in view here is to reduce the protrusion and obliterate the passage of escape by a process of sclerogenesis, in deliberately provoking aseptic inflammation in the connective tissues around the neck of the sac, with an adhesive fusion and obliteration of its serous surfaces. This is accomplished by the subligamentous injection of various astringents, driven in through a long, fine hypodermic needle. We cannot avail ourselves of this expedient in hernia of the funicular process between the rings, in the direct variety, in hernia with nondescended testis; and because of the possible danger of injury to the large blood-trunks, we will employ it with great caution in crural hernia.

This simple method has much to commend it. There is no division of the tissues, no loss of blood, no need for an anesthetic, nor long confinement in bed; nevertheless, though a comparatively harmless procedure, without care in its employment we may inflict serious damage to the elements of the cord, we may penetrate the peritoneal cavity, or perchance pierce an intestine. When we employ it, we should observe the strictest asepsis. Various fluids are used. The most effective is the fluid extract of oak-bark, with 10 drops of pure carbolic acid and 20 drops of laudanum to each ounce; of this mixture from 5 to 15 or 20 drops are slowly injected, in such a manner as to infiltrate the tissues immediately over the course of the funicular process. One injection may suffice, though it is sometimes necessary to repeat it.

In all these cases the Hank truss or the spica bandage must be worn for some time, until adhesive processes are complete and there is no tendency to relapse.

My experience with this simple procedure is such as warrants my recommending it in many cases, before resorting to a more formidable operation. It may be employed at any age from infancy on. Some of my patients have passed middle life. You will please note among the cases which have come here for exhibition this evening, one female of three months, a boy of two years, and a man of fifty-six. In the adult we will often witness the most gratifying cures, but in order to realize the best results in adults in very chronic cases permanency of cure is greatly enhanced by rest in bed during the period of treatment.

In conclusion it may be said of hernial remedies that the truss comes first, sclerogenesis second, and open operation

third; that it is our duty to always remove a persistent physical blemish or infirmity, wherever situated, when this can be accomplished by simple means and without jeopardizing life. This is especially imperative in the female, because of her child-bearing functions, in all who may be required to submit to physical examination for the public service, in those who have painful hernia, or such as threatens strangulation.

From time to time a descending hernia will become strangulated—*i.e.*, the contents of the sac becomes snared by a tight constriction, at the inner ring in inguinal hernia, and at the outer border of Gimbernat's ligament in femoral hernia. The ring closes on the extruded viscera so that mortification is threatened. The scrotum may become enormously distended, and the agony is intense when the degree of constriction is great. The patient may go into a state of shock early; vomiting is exhausting in most cases, though I have seen it entirely absent even when the intestine had gone on to gangrene. There are several varieties of strangulation, all depending more or less on the degree of stenosis of the intestine. In females the symptoms are generally urgent and the mortality is large if relief measures are delayed.

Diagnosis in strangulation is sometimes very difficult; indeed, the condition readily may be overlooked: (*a*) In old people, in whom the symptoms are not well defined; (*b*) when the protrusion is small, especially in femoral hernia of fleshy subjects; (*c*) when stenosis is gradual or the patient has had an irreducible tumor; (*d*) in Littre's hernia, or in complicated cases.

Strangulation may be confounded with: (*a*) Acute inflammatory disease of the inguinal glands; (*b*) neoplastic formations of the spermatic cord or testis; (*c*) acute internal obstruction.

It not infrequently occurs that strangulated hernia is only discovered when it is too late to expect relief by resort to surgery. Early diagnosis and prompt relief measures will save practically all cases.

Relief of strangulation is effected in two ways: (1) by taxis; (2) by operation —kelotomy.

Taxis, when employed with caution and discrimination, will effect safe reduction in a large number of cases; but applied by a bungler, or one who fails to properly appreciate the pathological conditions present, it is a murderous procedure. I have seen the intestine contused, lacerated and widely torn open by this means. Therefore, it must be always judiciously employed. Never hurry with it, for a narrowed canal is not altogether unlike a strictured urethra, which may often be coaxed into submission when we cannot force it without serious risk.

Having been called to a case, our first aim should be to overcome apprehension, place our patient in a comfortable position, and relieve pain, for pain always means here spasm of the passages and occlusion of the intestine. In order to effect this we will give hypodermically ¼ grain of morphine, and cover the hernia, tumor, and groin areas with crushed ice. If we have seen the case early, after these remedies are applied we let the patient remain undisturbed from one to two hours, or more if the symptoms are not urgent. We are now prepared to employ our next aid, one of the most valuable. This is ether, never by inhalation, but locally, by spray or irrigation, using from one to two or three ounces. Then we commence taxis—gentle, steady, persevering pressure without great force, never for more than twenty minutes at a time.

Let us see the *modus operandi* here: (1) rest; (2) narcosis and general relaxation; (3) local analgesia and the action of cold agents. We secure the patient's confidence when we subdue pain; we overcome the local distress and the vascular turgescence by the ice; moreover, spasmodic tension is overcome, and the work of reduction is made at once safe, simple, and certain in most cases. Except in hypersensitive or hysterical females we are never called upon to employ pulmonary anesthetics. The local use of ice and ether in strangulated hernia cannot be too highly recommended.

Having fairly tested simple measures and failed, no time should be lost in proceeding to operation; for by intelligent taxis or early operation all these cases should be saved. But whether the case be one relieved by taxis or not, at some time later an operation should be insisted on, in order to cure the infirmity.

*CONCERNING A NEW SERIES OF SYNTHETIC SALTS: THE NUCLEIDS OF IRON, COPPER, MERCURY, AND SILVER.**

By E. R. Larned, M.D.,

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Compounds of mercury, silver, copper, and iron have been employed since the earliest times in medicine, but our information as to their effects on diseased conditions in the human body has been decidedly hazy. Therapy, unless it be of quite recent institution, is empirical and founded on conjecture; but the trend of modern medicine is in the direction of rational therapeutics, that is, in the employment of means suggested by the disease-resisting powers of the body, and to prescribe so as not to interfere with or antagonize the conservative efforts of the organism, and it is just here that synthetic chemistry is particularly useful, by imitating nature and building up in the laboratory remedial agents similar to those constructed by the chemic processes of the system.

There is hope that chemistry will unlock the secrets of the so-called immunizing agents, and show the exact nature of these valuable chemic bodies and the processes by which they enable us to combat disease.

While many of the newer remedies possess chemic properties of the most astonishing kind, careful investigation shows also that many have no direct therapeutic value, which is easily explained when we consider how different from natural processes of disease are the circumstances of experiment.

It has been estimated that in the last thirty-five years no less than four hundred so-called antiseptics or germicides have been introduced to medicine. Compounds of mercury, silver, and copper have found a very extended application as germicides, particularly mercuric chloride ($HgCl_2$), silver nitrate ($AgNO_3$), and copper sulphate ($CuSO_4$).

The exact action of these germicides is not understood, although it has been variously explained. It is well known, however, that they are as a rule decidedly irritating and devitalizing; these undesirable features have been explained on the ground of their chemic affinity for the tissues or for the cell constituents.

For centuries iron has been administered without a thought being given to the question of how it acted; the results being satisfactory, that was all the physician (and the patient) cared about.

We know that certain metallic salts will enter into chemic combination with certain proteid substances, and recent investigations seem to have demonstrated that the leucocytes are the agents of absorption and transportation through the circulation of compounds of Hg, Ag, Fe, and Cu.

While the chemistry of living substances is still beyond our knowledge, and blood conditions are difficult to understand, the theoretic consideration upon which these salts were manufactured was stimulated by the physiologic investigations of Schafer, Bunge, Lowit, Halliburton, Vaughn, and many others, which show that the most distinctive constituent of white blood corpuscles is nuclein.

By nuclein is meant that constituent of the cell by virtue of which this histologic unit grows, develops, and reproduces itself. Chemically the nucleins are complex proteid bodies, notable for the large amount of phosphorus which they contain in the form of nucleinic acid, and by virtue of their nuclein the cells of various organs possess and manifest their individual peculiarities.[1] [2]

With our present knowledge of the components of white and red blood corpuscles and of lymph corpuscles, we are justified in stating that the most important constituent of them is the complex nitrogenous body called first by Miescher[3], since it is present in all cell nuclei, nuclein—a body which is remarkably stable and difficult to change by chemic agents.[4]

The leucocytes consist of 88.51 per cent water and 11.49 per cent solids, of which nuclein comprises 77.45 per cent;[5] the nuclei of pus corpuscles also consist very largely of nuclein.[6]

The red marrow cells have been examined macrochemically and found to contain high percentages of nucleo-proteids.[7] The red blood corpuscles have been found

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to possess, besides hemoglobin (86% to 94%), nuclein in amounts ranging from 5 to 13%.[8]

The liver,[9] spleen,[10] salivary glands,[11] kidneys,[12] lungs, testes,[13] [14] semen, ovaries, spermatozoa,[15] brain, cord and other nerve tissues,[16] [17] thymus[18] and thyroid glands,[19] have all been examined chemically, with the result that nuclein has been found to be the most abundant as well as most important proteid substance present. Whenever nature provides for the elimination of poisons or waste products of any description, there we find nuclein present, both in the secretions and in the tissues. The only proteid that has been obtained in any quantity from the thyroid gland is a nuclein;[19] [20] this observation should be of great importance in considering the administration of thyroid gland or extracts of it in certain conditions.

It may be that the administration of nuclein or nucleinic acid would be attended with good results in those cases where the exhibition of the gland itself has been of use.

Among the constituents of blood plasma nuclein has been demonstrated, and that the germicidal action of the blood is not due to phagocytes nor to serum-albumin, but is due to the nuclein present, furnished by the polynuclear leucocytes, has been demonstrated by Vaughn and McClintock.[21] [22] I do not discuss the theory of phagocytosis proposed by Metschnikoff in this connection, since I believe anyone familiar with his later writings[23] will agree that they offer a satisfactory demonstration of the statements of Vaughn and others as to the rôle played by the multinuclear leucocytes. The solid matter of the colorless corpuscles originating in lymphoid structures probably consists very largely of nuclein.[24] The vitality of the animal organism depends upon the integrity and functional activity of its cells; health is maintained and resistance to disease effected through the influence of the so-called "defensive proteids," of which nuclein is the most active. That nucleinic acid is a powerful germicide was first shown by Vaughn, Novy, and McClintock.[25]

The foregoing résumé is sufficient grounds for the assumption that nuclein or nucleinic acid occupies a much more important part in the physiology of the human body than we have been crediting it with.

Remembering these facts and theories, Schwickerath of Bonn[26] conceived that it might be possible to form soluble compounds of the metals (Hg, Ag, Cu, and Fe) which had been of so much value to medicine, with nucleinic acid, a substance common to both blood corpuscles and the vital tissues of the body, upon the assumption that such substances if possible to produce would be more gratefully received by the human organism and act less like foreign bodies than the commoner compounds of the metals.

Nucleinic acid can be obtained from semen, salmon sperm, blood, and yeast, but the difficulty arose of obtaining quantities of the acid by processes not too complicated. While the chemic formulæ of acids derived from these different sources differ markedly[27] [28]—

Nucleinic acid from blood, $C_{50}H_{82}N_9P_3O_{37}$;
Nucleinic acid from salmon sperm, $C_{40}H_{54}N_{14}O_{37}(P_2O_5)2$;
Nucleinic acid from yeast, $C_{47}H_{69}N_{16}O_{22}(P_2O_5)2$

—the physiologic reactions of these acids are practically identical, and as yeast cells (saccharomyces cerevisiæ) can be made to yield the acid more easily, this source was chosen.

When the statements of the various authors who have dealt with nuclein are compared it seems as though no definite substance exists to which the one name of nuclein could be properly applied; but it is more probable that the different results of the various workers are to be attributed to the impurity of the substances on which they operated,[29] or the faulty technique of their experiments.

Pure nucleinic acid from yeast being quite soluble in water, but more so if a small amount of alkali is added to the water, a solution of the acid is prepared and freshly precipitated oxide of the particular metal under consideration is added and gradually dissolved, combining with the nucleinic acid.

If a large quantity of alcohol (in excess) is now added a voluminous precipitate is formed, which is the new chemic compound of nucleinic acid and mercury, silver, copper, or iron, as the case may be. These new compounds contain the metals in true chemic combination;[30] they

do not precipitate albuminous substances, are not precipitated by alkalies,[31] and are very slightly affected by hydrogen sulphide; are soluble in water with faintly alkaline or neutral reaction, and in glycerin and lanolin. They are not soluble in alcohol or ether. They are decomposed by strong acids (nitric and sulphuric), not by dilute hydrochloric acid. Their aqueous solutions are not changed by boiling. They all have a metallic taste.

The nucleid of mercury contains 10 per cent of the metal, and has been named mercurol by Dr. Schwickerath. The nucleid of iron has 6 per cent of iron and the name ferrinol. The nucleid of silver contains 10 per cent of Ag and is named nargol. Cuprol is the nucleid of copper and contains 6 per cent of the metal.

The chemic formulæ of these salts have not been determined, and while the seeming inconsistency of not being able to demonstrate the chemic constitution of these nucleids (when we know the valence of the metals and know the chemic constitution of the nucleinic acid), and in claiming a definite chemic constitution for them, seems at first glance to be incontrovertible, still it is easy to explain to a chemist familiar with albuminoid substances.

It is a well known fact that the slightest variation in one of the multitude of conditions supervening in the chemic investigation of the constitution of an albuminoid body is sufficient to modify the result obtained, so that it is almost impossible to duplicate conditions so as to produce exactly duplicate results. These are difficulties experienced by chemists constantly in their work upon albuminoid compounds.

Regarding the statement that nargol, mercurol, ferrinol, and cuprol are definite chemic compounds, I may state that this is based upon the evidence afforded by the lack of action upon these compounds of the precipitating agents commonly used to distinguish the metals.

When to a solution of ferrinol a solution of H_2S is added there is no immediate reaction between the two, but a dark color gradually develops, which very slowly changes into black, apparently indicating decomposition. Tests show that it takes a very long time to produce complete conversion of the nucleid into sulphide, the time necessary for this action being infinitely longer than where ordinary iron salts are employed.

Cuprol is not precipitated by H_2S, nor does it give the characteristic blue color when treated with alkalies.

Ferrinol is not precipitated by NH_4, OH, or by $K_4Fe\ (CN)_6$; this latter reagent producing only a slight blue color upon adding it to a ferrinol solution.

When NaCl, or dilute HCl, is added to nargol solutions there is no characteristic reaction between them, but a change takes place which (shown by repeated tests) requires about ten days for the decomposition of the silver salt. In like manner a solution of mercurol is very slowly decomposed by NaCl or HCl. Mercurol requires a very long time to show any reaction with H_2S, and it is not precipitated by alkalies. The ordinary soluble salts of mercury and silver on the contrary are instantly precipitated by both. This remarkable behavior on the part of these nuclein combinations with their characteristic reagents certainly affords grounds for declaring that they are joined by one chemic bond, *i.e.*, that they are formed by a chemic reaction.

The therapeutic application of nuclein and compounds of nucleinic acid is perfectly rational, and supported by plenty of evidence based on clinical observation and experimental research. The theory, briefly stated, is to supply to the human organism directly that which it is constantly acquiring by more circuitous processes, thus going to the root of self-cure and using the laboratory for the artificial increase of the "defensive proteids" of the human body.

Practically the same theory underlies the so-called serum therapy, for while there is supposed to be an antitoxin for every toxin, yet the nucleins are presumed to be general and constitutional, not local and specific; in other words, they act as negatives to all kinds of positive displacements of the physiologic balance between health and disease.

More thought and work has been expended by physiologists in endeavoring to explain the physiologic importance and action of iron salts than those of other metals, so we may consider the nucleid of iron to good advantage, inasmuch as the internal administration and reactions of this series of nucleids seem to be practically the same.

The essential value of the inorganic salts of the metals in the proper nutrition of the body does not force itself upon our attention, since, as a rule, we unconsciously get a proper supply with our food (with some exceptions) without the necessity of making a deliberate selection. But they are surprisingly important in the maintenance of the normal physiologic and chemic properties of the tissues and body fluids.[32]

The greatest importance of iron salts lies in the fact that the continual formation of new red blood corpuscles requires a supply of iron for the synthesis of hemoglobin; in fact there is strong reason for the belief that all the iron necessary for the formation of hemoglobin is derived from nuclein compounds. Iron has been demonstrated in the nuclei of the white cells.[33]

Aporti[34] found that iron was par excellence the metal affected in the formation of hemoglobin.

In many conditions the administration of iron according to preconceived notions retards rather than accelerates the recuperative forces. According to Osler, Cushny, and others, the tincture of iron chloride is worse than useless in erysipelas. Years ago anemia was treated by massive doses of iron, but greatly diminished doses are the rule now.

Some physiologists deny the absorption of the chemist's iron, and many believe that only a limited percentage is absorbed. Nothing definite seems to be known regarding the absorbable form of iron, and only approximate estimates can be given as to the amounts taken up by the organism.

Some of the latest physiologic experimental workers claim that the inorganic iron follows the course of the food iron, but fail utterly to prove their case. It seems to me that the nutrient forces of nature, or, in other words, the chemistry of nutrition, must hold the secret so sought for.

That iron is absorbed by the intestinal villi and assimilated by the lymphatics, the same as any other food element, I believe to be true. The absorbing cells of the intestines take up certain parts of the intestinal contents in which they are bathed, and build up from these certain materials which pass into the lymph currents; the cells of the secreting glands take up materials from the lymph currents in which they are bathed, and from these elaborate in some manner products which are passed into the gland as a secretion.[35]

That absorption and secretion are selective chemic processes and not of a purely physical nature has been proven.[36] The remarkable quantitative resemblances between the ash of milk and the ash of the body of the young, and the equally striking difference between the ash of milk and the ash of the maternal blood, shown by Bunge, seems to show that the inorganic salts are formed from the blood serum, not simply by osmosis, but by some selective absorptive or secretory act.[37]

Bunge[38] and Schmiedeberg[39] have found, in the yolk of eggs, iron contained in a nucleo-albumen; that and similar nuclein compounds they believe to be the source of absorbable iron, while inorganic salts of iron are only useful in combining with the free H_2S in the intestines, forming FeS, thus preventing a similar formation with the nuclein iron.

I would advance the hypothesis that inorganic salts resist chemic decomposition and are absorbed or pass into the blood current only in so far as they combine with the nucleinic acid (which we have seen was so universally present in the vital and hematogenic organs), and that they become converted into nucleids by natural action; or, to state it in other words, inorganic salts of iron and other metals must undergo chemic reformation into nucleids of the metals before the organism can make use of them as nutrients or reconstructives.

This hypothesis would explain the physiologic action of the nucleids under consideration.

Physiologic researches on lower animals and clinical experiments have demonstrated that these new synthetic salts have great therapeutic possibilities.

Salkowski[40] working with nucleinic acid iron has shown that it causes marked increase of the iron in the organs, especially the liver of rabbits (300 per cent in ten days), to which it has been administered internally. In the tests the rabbits were given, in addition to their regular food, 2.5 grammes of nucleinic acid iron, for ten-day periods. In the following table the iron contents of the liver is calculated in milligrammes per kilogramme of animal weight.

Iron Administered.	No. of Test Animals.	Iron in Liver.
None	3	3.04
Albuminate of iron	2	4.52
Albuminate of iron	2	4.12
Nucleinic acid iron	4	9.05

After an experience with nargol in the treatment of over two hundred and forty cases of the various phases of conjunctivitis (of gonorrheal and other pyogenic types), of vernal catarrh, corneal ulcer, etc., Schwartz,[41] using solutions ranging from 5 per cent to 30 per cent, concludes that nargol is practically nonirritating, has considerable astringing power, penetrates deeply, and is more stable and more satisfactory than other silver compounds. He also observes that all of the solutions caused blanching of the conjunctiva.

Hartridge[42] has used 10 per cent solutions of nargol in cases of acute contagious ophthalmia and suppurative conditions of the lachrimal sac and finds that they cause no pain, are pleasant to use, and are efficacious, cutting short the attack, etc.

Wippern[43] reports three obstinate cases of empyema of the maxillary antrum which he was able to cure with ¼ of 1 per cent solution of nargol, after persistent and futile use of other methods of treatment.

Martin[44] places nargol first in his estimation of the silver salts for use as a remedy in gonorrhea. He finds that the treatment of acute and chronic inflammations of the genitourinary mucous membrane, and in acute and chronic cystitis, by injection and instillations of nargol is followed by the most happy results.

Lydston[45] thinks that "nargol, the new compound of silver and nucleinic acid, merits a trial."

In view of the demonstrated value of silver salts in the treatment of gonorrhea it seems as though the silver nucleid would be particularly valuable in this disease, and clinical experiments are being conducted to determine this point.

While the old fashioned bluestone still has a prominent place among remedies for the treatment of granular ophthalmia, etc., the nucleid of copper (cuprol) seems to be fast displacing it.

Snell[46] reports having used cuprol in several cases of trachoma, using the dry powder and 50 per cent solutions alternately, with very encouraging results. He finds that the powder is so impalpable that it does not immediately irritate, and that the discomfort is very slight as compared with the application of bluestone.

Von Sicherer[47] after using cuprol for ten months finds it particularly useful because of the absence of pain and irritation following its application. He has used it in many cases of acute and chronic catarrh of the conjunctiva, and in obstinate cases applied the dry powder. The pain attending this procedure is slight, and a local anesthetic is never necessary.

Butler[48] points out that copper is a very valuable alterative nervine, although neglected by modern physicians.

Hare[49] states that strong claims for copper have been brought forward as a valuable remedy in anemia, as a stimulant to the tissues, and for local use in pharyngitis, etc.

It is rational to believe that cuprol would be used with satisfaction in such cases as Butler and Hare describe.

Ayres[50] has used the mercury nucleid (mercurol) in the treatment of syphilis very extensively. He reports a series of one hundred and eighty cases so treated, of which he presents a tabulation of ninety-five cases, in which he states that sixty-seven cases had no other medication than mercurol. In fifteen out of the remaining twenty-eight the addition of iodide of potassium was found to be sufficient to control the disease, while in six others the addition of an iron tonic sufficed for this purpose. Ayres concludes that mercurol is the most satisfactory form for the administration of mercury in the treatment of syphilis.

Guiteras[51] concludes after treating one hundred and fifty cases of specific urethritis with mercurol solutions, beginning with one-fourth of one per cent and increasing to five per cent, that it is a very efficient and safe remedy to use in this way. He lays special stress on the fact that of this series only two developed complications—one a gonorrheal rheumatism and the other an epididymitis—an extremely low percentage.

Smith[52] has used mercurol in solution in cases of gonorrheal ophthalmia, chronic conjunctivitis, blepharitis, phlyctenula, ulcers of the cornea, acute and chronic suppurative otitis media, before and after cataract operations, and reports very gratifying results. He also uses mercury nucleid in ointments in preference to the yellow oxide.

Fraley,[53] reporting on the use of mercurol in the treatment of gonorrhea, shows that relief of the symptoms was prompt, and that the average duration of the treatment was twenty-six days.

Burtenshaw,[54] in reporting a case of exudative pericarditis in the course of which a severe cystitis arose, speaks very favorably of irrigations of mercurol, which almost immediately relieved the patient after other remedies had failed, and within four days completely cured the cystitis.

Darche[55] is enthusiastic over a combination of mercurol, boric acid, and chloretone, which he has used in ointment, suppository, and bougie in the treatment of ulcers of leg, ulcers of rectum, ulcerated hemorrhoids, pruritus vulvæ, and acute gonorrhea.

Lake[56] has used mercurol extensively in the treatment of acute and chronic suppurative otitis media, in operations (ossiculectomy and opening the frontal sinus), irrigating maxillary antrum, etc., such treatment being followed by satisfactory results.

Scherck[57] finds that mercurol possesses strong germicidal properties, penetrating the tissues more deeply and with less irritation than other remedies in genitourinary diseases.

Martin[58] believes mercurol to be the most satisfactory gonococcicide we have.

Stone[59] in seven cases used twenty grains of mercurol to the ounce of vaselin as an ointment in dressing ulcers of the leg preparatory to skin grafting. In from five to ten days the ulcers were healthy and ready for grafting, and in every case the grafts took, so that at the end of two weeks the patients were discharged.

Hay,[60] of Hot Springs, reporting one hundred cases of syphilis treated with mercurol, states that it controls the symptoms more satisfactorily than any other preparation of Hg, given internally, that it does not produce gastroenteritis, only causes diarrhea when pushed beyond toleration.

DEDUCTIONS.

1. These new salts of nucleinic acid are rational reconstructives; they are true tonics; they increase physiologic resistance; they increase the functional activity of secretory organs.

2. They are powerful germicides, while not harmful but beneficial to the tissues.

3. If our present knowledge of nucleins and leucocytosis is correct, then the nucleid is the proper form for administration of metals.

4. We do not positively know the rationale of their action but we have nothing which holds out such prospects for successful medication.

5. These new synthetic salts are valuable additions to the pharmacopeia.

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*PUERPERAL ECLAMPSIA.**

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I read a paper some months ago before the Paducah Medical and Surgical Society on the subject of puerperal eclampsia, and some of my friends, members of that society, requested me to present a paper to this society on the same subject.

In bringing before you for consideration the subject of puerperal eclampsia I do so with a full knowledge of the fact that its etiology has long been a mooted question, and as a result much has been written and said about the disease. I have taken the pains during the past several months to consult a large amount of literature, consisting of the latest books and periodicals on the subject of eclampsia, and find that various writers high in authority differ materially as to its etiology and treatment, as will be shown by some references.

By the term puerperal eclampsia is meant a peculiar kind of epileptiform convulsions, which usually occur in the latter months of pregnancy, or during or after parturition, and which every obstetrician of any great amount of experience has seen, and having once seen a case it becomes so indelibly impressed upon his memory that it is never forgotten.

The fact that the etiology of eclampsia has long been a mooted question has made it an interesting field for study, and many of the theories that have been advanced as to its cause have been found to be incorrect. It has been claimed that eclampsia was due to pressure of the gravid uterus on the renal vessels. This can be disproved by the fact that eclampsia is perhaps never caused by fibroid or ovarian tumors, and further, that the gravid uterus exerts no such mechanical interference with the kidneys when it rises above the pelvic brim.

One of the recent theories advanced as to the pathogenesis of eclampsia is that it is an infectious disease and due to a specific germ. W. Stroganoff, in *Zeitschrift f. Geb. u. Gyn.* (Stuttgart), and translated in the *Journal of the American Medical Association,* May 19th, 1900, says: "Several series of cases of eclampsia at the St. Petersburg Midwives' Institute sustain the theory advanced by Stroganoff that eclampsia is an infectious disease. Analyzing cases reported by others he notes that Olshausen records eleven series of cases of eclampsia, eighty-three in all, occurring within two hundred and fifty days, and Zwiefel records twenty series. A curve made up from these and his personal observations shows the same striking accumulation of cases the sixth day after the first infection. He affirms that eclampsia is an acute infectious disease, caused by an air-borne contagium, which usually penetrates into the organism through the air passages. The disease germ is very slightly virulent. Men and children are not susceptible to it, nor women at any period of their life, except during the puerperium. It can

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also find favorable conditions for development in the fetus, and makes no distinction between male and female in this respect. The germ is very resistant and in hospitals retains its virulence about three weeks. The period of incubation is short, from three to twenty-four hours. Primiparæ, women bearing twins, and women with renal affections, are most susceptible. Strict isolation in all cases and disinfection of attendants are imperative. Nocard also admits the infectious nature of the disease from his observation of its occurrence in cattle and dogs when casting their young."

Prof. James M. Anders, of Philadelphia, in Sajous's Annual and Analytical Cyclopedia for 1900 says: "Pregnancy may act as a cause of acute nephritis (nephritis gravidarum). In such cases it usually appears in primiparæ in the last months of gestation, and is probably the result of renal engorgement, due both to mechanical pressure and to nutritive disturbances in the kidney, due to the altered blood condition. Latent chronic nephritis may form the cause of a manifest acute nephritis."

Herman, in the *British Medical Journal,* from Sajous's Annual, reports six cases of pregnancy with Bright's disease. Two forms are recognized—one hyperacute, absence of premonitory symptoms, chiefly attacking primiparæ, with no diminution of urine and no massive albuminuria, producing convulsions and bringing about the death of the fetus; the other in older women, the prodromata lasting weeks or months, characterized by increase in the quantity of urine and less severe albuminuria; may be unaccompanied by convulsions and very often becomes chronic.

K. A. Hertzfeld, in *Centralblatt f. Gynäkologie* (Leipsic), Oct. 5, 1902, and translated in the *Journal of the American Medical Association,* Nov. 30, 1901, says: "In looking over the reports of 18,000 dissections at the Vienna Institute of Pathology, during the last ten years, eighty-one cases of eclampsia were found. In thirty-eight the record described indications of chronic nephritis; in twenty-five of parenchymatous degeneration of the kidneys; and in eighteen compression of both ureters. Compression of the ureters was observed in the majority of the cases of eclampsia in primiparæ. In thirty-two out of the eighty-one cases a hemorrhagic hepatitis was mentioned with compression of the ureters in four; in twenty-one cases no macroscopical alterations were noted in the liver, but compression of the ureters had occurred in ten. Chronic Bright's disease with more or less severe changes in the heart was found in 46.6 per cent, and acute nephritis in 31.1 per cent. The conclusion from these data seems evident that in the majority of cases of eclampsia there is an existing predisposition to some lesion or affection of the urinary system. This assumption is further sustained by the fact that the cases in which the eclampsia appears in the early stages of pregnancy are considered the most severe. They are almost inevitable cases of preëxisting severe nephritic processes, an important point for the prognosis."

H. O. Nicholson, in the *Lancet,* June 29, 1901, and reported in Sajous's Monthly Cyclopedia of Practical Medicine, October, 1901, states: "The toxic theory of eclampsia is the one now generally held by most obstetricians, and in this connection the following points may be mentioned: (1) It may be presumed that there is an inherent weakness of the kidneys, or a susceptibility rendering these organs the vulnerable point in the system; that in every case of pregnancy more or less toxemia exists, and that the blood intoxication becomes more profound towards the end of gestation; (2) that although the eclamptic state is due to a toxemia, the toxic agent which excites the convulsions is probably not always the same; there seem to be different types of the disease; (3) that the toxins may be produced in greater abundance in some cases, and that they are generally more virulent in primiparæ than in multiparæ. In the primipara mechanical pressure on the renal vessels may possibly come more into play, while in the multipara a certain degree of immunity against the toxins may have been acquired from previous pregnancies."

Personally I do not take any stock in the theory that eclampsia is an infectious disease and attributable to a specific germ; I do not believe that it is due to pressure entirely, nor do I believe that it is due to diseased kidneys *per se.* I believe that eclampsia (which is only a symptom) is attributable to a general systemic tox-

emia having its origin in the liver, gastro-intestinal tract, and kidneys. I believe that the train of symptoms accompanying many cases of pregnancy—namely, neuralgia, pruritus, nausea, insomnia, skin-pigmentation, jaundice, eruptions, melancholia and mania—may all be traced to the same source as eclampsia, namely, a general toxemia.

Perhaps there is no condition of the body, in health or disease, which is attended with such manifest tendencies for obstructions of normal eliminations as that of pregnancy. All of the organs—the kidneys, skin, intestines, liver, and lungs—are always more or less interfered with during pregnancy, either by reflex irritation or mechanical pressure. The most important source of elimination, the intestinal canal, is almost invariably interfered with. Defective action of the liver means cholemia; retarded liver and intestinal evacuations means defective sewage of the system; lung interference implies carbonic acid retention; diminished kidney action means uremic poisoning; and a combination of all these conditions necessitates a general toxemia. And while all these functions are more or less disturbed we can readily understand how soon one can become poisoned.

The physiological growth and development of the uterus and its contents, fetus and placenta, necessitates an increased blood supply, hence an increased vascular and nervous tension; and in almost all pregnant women there is an increased excitability and irritability of the nervous system.

E. P. Davis in the *American Gynecological Journal,* July, 1899, states that "the weight of evidence is distinctly in favor of the belief that a profound toxemia, originating within the bodies of the mother and fetus, is the cause of eclampsia." Davis further says: "The urine of eclamptics injected into animals is but feebly toxic, while the urine of healthy individuals is often highly toxic; but this is because the toxins of eclampsia, while absent from the urine, are retained in the blood serum and in the organs of the body. If the urine were toxic the patient would get rid of the poison and would not be intoxicated. The serum of eclamptics is highly poisonous to animals."

It is not necessary to speak to this intelligent body of physicians of the symptoms of eclampsia, except to say that the symptoms are divided into premonitory symptoms, and symptoms of the attack, and naturally therefore the treatment is divided into prophylactic, and that of the emergency or attack.

If, as seems to be proven, eclampsia is a general toxemia, having its origin in deficient liver, kidney, and gastrointestinal action, then our prime object in prophylactic treatment must be free elimination, thus freeing the system of its toxic elements; hence, diuretics, diaphoretics, and cathartics must play a leading rôle in the medicinal treatment. It is fortunate that the consensus of medical opinion has taken the more broad and comprehensive view of the pathology of puerperal eclampsia, by concentrating our attention not on one but on many organs of the body, in determining the causation and judicious management of this frightful malady.

Having been called to see a pregnant woman and finding her with a general anasarca, the skin having a blanched appearance, puffiness of the eyelids, coated tongue, constipated bowels, extreme nervousness, violent headache, scanty or suppressed secretion of urine, and albuminuria, then free catharsis with calomel—I prefer calomel because it is cathartic, diuretic, and antiseptic—followed by diuretics and a milk diet, will frequently avert a convulsive seizure. A favorite diuretic of mine is infusion of digitalis made from fresh leaves, and acetate of potassium. I know it is said that potassium salts are irritative to the kidneys, but I have almost always had good results from this combination of remedies. The patient should be instructed to drink freely of good water and keep the bowels in good condition. Frequent examination of the urine should be made, and also the quantity of urine should be looked after. The prophylactic treatment is of particular importance, because experience teaches that in almost all cases except those in which chronic nephritis exists, free elimination prevents the eclamptic attacks. For this reason it is important to keep the emunctories in order.

The treatment of the attack has been limited to the therapeutic and the surgical, the former including veratrum viride, morphine, chloral hydrate, chloroform in-

halations, etc., and the latter including phlebotomy, forcible dilatation of the cervix, version, lateral incision of the cervix, and forceps.

A careful review of the controversy shows that the real question at issue is whether the patient shall be delivered at once upon the occurrence of convulsions, no matter what the stage of pregnancy may be, or shall we try the therapeutic method first, and resort to the surgical only when the first method has failed.

Veratrum viride and morphine probably stand at the head of the list to-day as remedial agents for the convulsions.

Much has been said during the past year relative to the use of saline infusions in large quantities in the treatment of eclampsia, and to-day that treatment is indorsed by many leading obstetricians of the country. It is claimed that its diuretic action is marked and prompt. I have had no occasion to use it since my attention has been called to it, but the treatment is rational, and since the experience of those who have used it is so satisfactory I will use it when occasion demands.

About ten years ago, at a semi-annual meeting of the Southwest Kentucky Medical Association, at Princeton, Ky., Dr. R. S. Coleman of that city read a paper on the use of veratrum viride in the treatment of eclampsia. Since that time I have used it in perhaps a dozen cases, always with good results. I give it in doses of fifteen to thirty drops (Norwood's Tincture), hypodermically, and have had no bad results. In a number of cases there was not a return of the convulsions after the first dose.

Regarding the use of veratrum viride in the treatment of eclampsia, the editor of the THERAPEUTIC GAZETTE addressed letters to prominent obstetricians in the United States, asking for opinions. These replies were recorded in the same journal of August 15, 1901. Replies were received and recorded from eight prominent obstetricians. Five of the replies commended strongly the use of veratrum viride in the treatment of the convulsions, and three were against it. In order to get both sides of the controversy before you I quote one reply from each side. Barton Cooke Hirst, M.D., Professor of Obstetrics, University of Pennsylvania, says: "I have employed veratrum viride in the treatment of eclampsia for some twelve or thirteen years and have great confidence in its efficacy. I have seen it reduce the pulse to sixty or below in a few minutes, and as long as the pulse was so reduced the convulsions have not reappeared. I usually give fifteen to twenty drops of the fluid extract hypodermically as the first dose, and repeat in five drop doses if the pulse rises in rapidity. I have once or twice seen poisoning result, but it was not serious and it was easily manageable by stimulants. As you may imagine, the drug is most valuable in cases with a strong, bounding pulse, with suffused face and danger of cerebral apoplexy; in an asthenic case with feeble pulse and pale face I would not employ it. It certainly takes the place, I think, of venesection, and is desirable in the kind of cases in which bleeding would do good."

Now in order to give the other side of the question, I quote from W. Reynolds Wilson, M.D., Obstetrician in charge of the Philadelphia Lying-in Charity. He said: "I think your proposition to determine the exact status of this drug in this use is very important. I agree with you that unless it has some special beneficial action, or perhaps to put it more properly, some decided action in special cases, it ought to have no place in the therapy of eclampsia. Personally I place no dependence upon it, as in my experience the method by which eclampsia can be best treated, outside of prophylactic measures, is by the establishment of prompt elimination. For this reason I am in the habit of administering full doses of calomel, two grains in repeated doses, until at least twenty grains are taken, for the diuretic as well as the purgative action, as soon as possible after the control of the eclamptic seizure. For the latter purpose I begin to feel that full doses of morphine are to be relied upon almost equally with chloroform, as in the majority of cases I believe the condition due to the special toxemia with the resulting, rather than primary, nephritis. One point in reference to veratrum viride is of great importance, and that is that the drug possesses, if I understand the subject rightly, a powerful motor depressant effect. This being the case it would seem to me that its use might interfere with the active uterine contractions which are apt to supervene in eclampsia parturientium,

and which constitute nature's means of removing the exciting cause of the convulsions."

I will now briefly report two interesting cases of eclampsia occurring in my practice, and I am through.

CASE 1.—Called by telephone to see Mrs. J. D. Y., Sunday, May 21, 1899, at 8 o'clock A. M. She lived a short distance out of the city; I tried to ascertain by telephone the nature of the case but could not, hence was not prepared for an emergency. Patient was a multipara, about eight months advanced in pregancy; had complained that morning of severe headache, and had general anasarca and scant urine; had had two convulsions before my arrival, and was unconscious. Patient was bled and an eliminative treatment prescribed. Saw patient at 3 P. M. same day; she had had four convulsions. Gave twenty-five drops veratrum hypodermically, and thirty grains chloral hydrate per enema. Remained with patient some time; she continued restless, and I gave morphine hypodermically. Visited patient at 10 P. M. and found her resting well. May 22, 9:30 A. M., patient very much improved, apparently perfectly rational; knows nothing of being sick or of my having been there the day before.

May 24, 4 P. M., two days later, patient very much improved; says she remembers nothing from Sunday morning until to-day; remembers nothing of my visit Monday, although she appeared to be rational at the time. I had not been able to get a specimen of her urine up to this time, and I instructed her husband to report to me later if she did not continue to improve, and bring specimen of urine.

May 28, one week from first call, husband brought specimen of urine and said patient was complaining very much and had "smothering spells." Urine showed large quantity of albumin.

Asked Dr. Rivers to see the case with me. Patient's pulse 130 and feeble, respirations 42, unable to lie down, nervous, and all indications unfavorable. We decided to at once terminate the pregnancy. My instruments were sterilized, I scrubbed the vagina and external genitals thoroughly with green soap and bichloride. Dr. Rivers anesthetized the patient with chloroform and I dilated the cervix with my fingers, finding a placenta previa lateralis, in consequence of which there was considerable hemorrhage; placed forceps and delivered child living. The operation was entirely complete in forty-five minutes from the time the chloroform was commenced. Mother made a good and prompt recovery. Child lived several weeks and then died. I do not know the cause of the child's death, as I did not see it.

CASE 2.—Mrs. H. J., aged twenty-four years. Always a strong, healthy woman; never had any disturbances of menstrual function, ovarian trouble, or even the slightest leucorrhea before conception, which took place more than a year after marriage. Simultaneously with conception she developed trouble in right ovarian region. A tumor developed, pain was severe, and patient had slight fever. Consultation was had, patient was anesthetized, and a diagnosis of extra-uterine pregnancy was made. At about the ninth week of her pregnancy, with the assistance of Drs. Caldwell, Stewart, and Rivers, I operated and removed an ovarian cystoma, instead of finding an extra-uterine pregnancy. The normal pregnancy was not disturbed. Patient made a rapid and complete recovery and continued well until about six weeks before the end of gestation, when I was called and found symptoms of nephritic trouble, namely, general anasarca, albuminous urine, etc., etc. An eliminative treatment was at once instituted, patient put upon a milk diet, and every effort made to carry her through to the end of the term. My former connection with the case made me more than anxious to conduct the patient safely to the end of pregnancy. I was unable to free the urine entirely of albumen and several times became very uneasy about my patient and advised that she be left at no time alone. The beneficial effects of a milk diet were especially noticeable in this case, the patient herself noticing that she became worse if she did not adhere to the dietetic treatment as prescribed. The Southwest Kentucky Medical Association was in annual session in this city about the time my patient was worst, and I reported her case to the society and asked for advice. Several of the members advised that I at once terminate the pregnancy, but this I did not do. I was called to the patient in labor at full term the morning of June 3, 1901.

Labor progressed favorably until about 7 P. M., at which time she was in second stage of labor, the head beginning to press upon the perineum. About that time she began to complain of severe headache, the first time in her illness she had done so. I was sitting by her bed looking at her face when I noticed her head draw to one side, her eyes draw over until the whites only were seen, and slight twitching of the eyelids; this was repeated two or three times, and I asked patient if she had not been slightly unconscious. She replied no. I immediately telephoned for Dr. Rivers, who came promptly and I related to him what had occurred, and about that time she was seized with a violent convulsion. He immediately chloroformed her and I completed the delivery with forceps, the patient having a complete perineal laceration. The perineum was immediately carefully sutured and in a short time we left patient entirely rational. Visited patient the next morning at 9 o'clock and found that she had just had a rigor and then had a temperature of 104°. Her fever continued for about ten days; it was not a septic fever. She complained at times of severe pains in kidneys, especially right kidney, so severe that I had to resort to morphine hypodermically. There was not a particle of union in perineal wound, not even an attempt at union on the part of nature by the throwing out of granulations, as the wound presented a dry, glazed appearance. This was no doubt due to the general systemic toxemia. Patient, however, otherwise continued to improve, urine cleared up, and in about four weeks she went to her mother's, a short distance away. She immediately became worse, again had fever, albuminous urine and severe nephritic pains. A microscopical examination of her urine was made, which showed numerous blood and pus corpuscles, and a diagnosis of pyelonephritis was made and the ultimate recovery of my patient was despaired of.

In a few weeks, however, she again began to improve. Repeated examinations of her urine were made from time to time, and in October, 1901, four months after delivery, I found the urine entirely free from albumen, and on Oct. 16, assisted by Drs. Cooley and Rivers, I operated for lacerated perineum. The operation was successful. After operation she complained again of kidneys, and urine showed slight trace of albumin. I examined her urine again a short time ago and found it clear.

ICHTHYOL IN RHEUMATISM.

By George S. Post, M.D.,
Fair Haven, N. Y.

The writer submits the following as being of possible interest to some medical brother who has not yet tried ichthyol in rheumatic disorders.

Case 1.—W. F., aged 28. Suffered with acute articular rheumatism. Both knee-joints were swollen, tender, and painful. The temperature of the affected joints was perceptibly above normal. The joints could not be moved without causing excruciating pain.

The bowels were thoroughly opened with tablespoonful doses of a saturated solution of Epsom salts, and salicylate of sodium, gr. x every three hours, was prescribed. A coating of pure ichthyol was painted over the affected joints, and they were then covered with cotton and oiled silk. The pain, tenderness, swelling, and local fever were all appreciably reduced before the constitutional treatment had time to display its beneficial effect, and the patient was consequently saved from considerable discomfort.

Ichthyol was applied in this manner eight times at intervals of eight hours, when it was discontinued, being no longer considered necessary. I am convinced that it was of great value.

Case 2.—Mrs B., aged 56. The patient had suffered from chronic rheumatism of the hip-joints for the last three years, following an acute attack. She had changed physicians repeatedly, and had faithfully taken the remedies they prescribed, in addition to those recommended by the friend who "can tell you of something that will surely help you." All effort to relieve the condition was unavailing, the symptoms getting neither better nor worse. The patient spent the most of her time on her couch. After resting in any position for a time she had difficulty in changing to another, owing to pain and stiffness. Walking was accomplished by short, hitching steps, and as a rule her excursions were limited to her room. As-

sistance was required to mount a step, and the pain caused by jolting was such as to preclude carriage driving. Pressure over the trochanters provoked dull pain, which was worse before a storm. This prevented her from lying on either side, except for a short time. The sciatic and obturator nerves were not especially involved. The bowels were constipated.

Eight weeks ago the following treatment was instituted: A saline laxative was prescribed in small daily doses; an ointment of ichthyol (50 per cent) was directed to be well rubbed into the skin over the region of the trochanters morning and night. Ichthyol and glycerin, of each two drachms, peppermint water one ounce, was prescribed, given in the dose of 20 drops in water after meals.

Slight improvement was noted within ten days, and it has steadily continued. She now walks with much less difficulty about the house, and in pleasant weather is out of doors a part of the time. She rides in a carriage without pain or inconvenience. The vigorous rubbing given when the ichthyol ointment is applied elicits no pain or tenderness, as at first. The ichthyol given internally caused some gaseous eructations, but was attended with no other disagreeable consequences.

THE RESULT OF TREATMENT OF CARCINOMA OF THE COLON.

The *Medical Press and Circular* of May 7, 1902, states that HOCHENEGG, of Vienna, has recently reported the results of treatment of this condition.

The cases treated numbered 282. In one case of disease of the cæcum, rectal carcinoma at the level of the third sphincter had developed; the carcinoma was very friable, and at the operation small fragments were washed away. In one case of cancer of the transverse colon a special method of operation was carried out. In June, 1894, a man, aged seventy-six, was operated on who on the third day thereafter developed ileus, with a good deal of meteorism. On laparotomy the transverse colon was seen to be distended to the right, and examination revealed a small annular carcinoma. The author did not resect at once, but drew the diseased portion out of the wound, sutured it, opened the distended colon, and a week later did the resection. The patient at present feels quite well, so that we have a permanent result for eight years. The operation was also performed in four other cases, twice with good results.

In three cases of carcinoma of the flexure health was retained for six years in one, the patient dying of a non-malignant cerebral disease. The second case was that of a man of seventy, who was operated on in October, 1900. The flexure was the seat of numerous diverticula, and the disease had commenced in one of them. The third case was interesting as showing that in cases where the occlusion was highest, irrigation did harm. The medical attendant had ordered washing out on account of retention of the feces. After this a tumor formed above Poupart's ligament, which was painful, and accompanied by fever. The author found a large infiltration at the spot, and on more careful examination a large tumor on the left. The infiltration was opened up, the cancer of the flexure drawn into the wound and resected. The patient is feeling well, except, of course, for the artificial anus. The violent irrigation had forced an opening through the intestinal wall.

As regards carcinoma of the rectum very varied results have been given by various operators. The author has only made use of the sacral method, and always with a good result. It had been suggested that he has made a careful selection of cases for this operation, but it is not so. He has performed this kind of radical operation in seventy-two per cent of his cases; in the remainder only palliative measures were admissible, and these were not included in his statistics. The number of his radical operations was 174, and this shows that selection was not much made use of. He is very careful, however, and when in the course of an operation success does not seem probable, he prefers abandoning it rather than to complete it. In order to arrive at some clearness as to the mortality in the hands of different operators he has examined the cause of death. He groups them in two series: (1) direct result of operation; (2) disturbance during the progress of the wound. He has lost only one case from collapse, and one from hemorrhage on the eighth day, whilst other operators show larger numbers from these causes. He can show a large number of permanent recoveries—30 in 174 operations—where the patient had remained free for over three years. Ten cases had complete, and two a comparative, continence.

The Therapeutic Gazette

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Leading Articles.

A FEW FACTS IN REGARD TO THE TREATMENT OF CHRONIC NEPHRITIS.

This interesting subject was quite exhaustively considered at the meeting of the Section on the Practice of Medicine of the American Medical Association, and we were glad to note that an important fact in the therapy of this condition was brought forward by more than one speaker, a fact to which we have called attention on previous occasions in the editorial columns of the GAZETTE, namely, that Basham's Mixture cannot be distinctly curative in chronic parenchymatous nephritis; that under some circumstances it acts as a useful diuretic; and that it may perhaps tend to combat the marked anemia which is so commonly met with in this affection. On the other hand, it not infrequently aids in disordering the digestion, and it is not to be considered as a curative agent, but rather a symptomatic remedy. So, too, we think it worthy of note that in some cases of nephritis in which there are distinct evidences of parenchymatous change it is futile to administer digitalis for the purpose of relieving the flagging heart, since in a certain proportion of cases a primary or secondary degeneration of the myocardium is present, with the result that the digitalis finds few healthy fibers to stimulate, and may perhaps drive the remaining active ones to undue exertion. It has always seemed to us that in such cases the rapidly acting diffusible stimulants like ether, alcohol, ammonia, and strychnine produced better results than remedies like strophanthus and digitalis. Then, too, the point was well emphasized by Dr. Favill that the general view that red meats were disadvantageous for this class of patients was to a certain extent erroneous, and that most of them can take red meats with as great impunity as white meats. This fact we have also pointed out in the editorial columns of the GAZETTE within the last eighteen months, and as we then asserted, chemical research has failed to reveal any difference in the effect of these various foodstuffs on the economy. It is also not to be forgotten that in some cases where the albuminuria is very profuse there is so great a leakage of albuminuria from the body that it is wise to give the patient considerable quantities of albuminous food to make up for the leakage. We also believe that in many instances in parenchymatous nephritis, even if dropsy is present, it is useless to deprive the patient of water which he may crave, since under these circumstances he has thirst added to his other suffering without a commensurate gain in a diminution of his dropsy, and in some instances we believe that the free drinking of a pure water aids in elimination of effete materials through the kidneys.

THE VALUE OF CACTUS GRANDIFLORA IN CARDIAC THERAPEUTICS.

Some conclusion may perhaps be at last reached as to the exact position of cactus grandiflora as a cardiac stimulant. We believe that the general consensus of opinion in the profession at the present time is that it is by no means the equal of digitalis or strophanthus for the purpose of increasing the activity and the

power of the heart, but that it possesses distinct value in certain cases in which the heart sounds seem to lack quality and tone, and in which irregularity in the action of this organ produces more or less annoyance to the patient. In other words, it is one of the more feeble cardiac stimulants, or heart steadiers, which should be borne in mind when treating cases of disordered cardiac function.

Our attention has recently been called to this matter once more by a paper written by Zelenski from the clinic of Parenski in Krakau, and published in the *Klinische Therapeutische Wochenschrift* of June 1, 1902. In his cases the patients suffered from valvular lesions such as aortic insufficiency and aortic stenosis, or with mitral lesions resulting in edema of the extremities and ascites. He employed a fluid extract of the drug, and the results which he obtained led him to believe that the drug possesses very distinct therapeutic advantage. Such has been our experience rather in functional disorders than in valvular lesions.

THE TREATMENT OF PNEUMONIA.

We have read with considerable interest an article by Dr. N. S. Davis, Jr., of Chicago, upon this subject which he has published in the *Journal of the American Medical Association* for July, 1902. In its course he points out clearly the difference which is to be recognized between therapeutic measures which are curative and therapeutic measures which may modify the severity and course of the disease. We can scarcely consider any of our measures to-day as belonging to the first class. On the other hand, it has been the experience of many practitioners who have met with many cases of pneumonia that venesection is often useful for the purpose of unloading a dilated right heart, and that resort to this measure when the jugulars are distended and the radial pulse small will often be followed by great improvement in the patient. We are glad to see that Dr. Davis condemns the employment of antimony in the later stages of pneumonia, as it is too depressing, and we are also pleased to note that he distinctly limits the employment of veratrum viride, for it is not safe when the preservation of cardiac strength is all-important; but he thinks it will often prove of comfort to patients when they are young and vigorous, and when the action of the heart is excessive in the early stages of the disease.

After all, the key-note of the treatment of pneumonia is to a large extent the key-note of Dr. Davis's paper, namely: that we must meet indications as they arise; that we must guide our patient through the illness without the institution of measures which are designed to shorten it. In other words, excessive delirium may be controlled by hypodermic injections of morphine occasionally so that the patient does not wear out his nervous system. The heart should be supported when necessary by alcohol, by aromatic spirit of ammonia, and in the event of a crisis by the use of Hoffman's Anodyne and strychnine. Pain in the chest may be modified by strapping or by the use of minute quantities of morphine or Dover's powder, and the greatest possible care should be taken that the patient remain absolutely recumbent, and under no circumstances put an increased strain upon the heart by attempting to sit up or get out of bed. While it is perfectly true that many physicians report large numbers of patients suffering from pneumonia as having recovered, it is also a fact that its mortality rate is still distressingly high, and that no means has as yet been introduced which can be relied upon in all cases to diminish its mortality; since, as an infectious disease, it must necessarily affect different patients in different ways.

THE THERAPEUTIC DIAGNOSIS OF MALARIAL INFECTION.

We have published in the Progress columns an abstract of a paper by Dr. Patrick Manson, of London, in which he emphasizes certain points in connection with the diagnosis of malarial fever, particularly in its relation to the administration of quinine. The object of this editorial note is to call attention to the facts which are mentioned by Manson and which we are quite certain deserve greater consideration than is often accorded them.

In the first place it is of vital importance to see that quinine is administered in a form which permits of its rapid assimilation, as most of this drug must be

absorbed from the stomach, for it is precipitated by the alkaline juices of the intestine. For this reason the administration of sugar-coated pills or compressed tablets of quinine in cases of malarial fever is usually unwise, because in all febrile processes, and particularly in those which interfere with the action of the liver and so disturb the gastroduodenal circulation, the function of the stomach is impaired or entirely set aside, and as a consequence, even though large doses of quinine may be swallowed by a patient, a very considerable quantity escapes through the bowel without in any way attacking the malarial parasites which may be in the blood. Some years ago an instance came to our notice in which a well-known practitioner in the suburbs of Philadelphia during an attack of typhoid fever was given a large number of compressed tablets of quinine sulphate. At the end of the third week death occurred, and at the autopsy most of the tablets were found in the intestine but slightly dissolved. In still another instance an officer in the United States army suffering from estivo-autumnal fever failed to be relieved by the administration of quinine in full dose, and it was discovered that the druggist was dispensing the quinine to him in small, hard pellets, which were placed in capsules. As soon as the quinine crystals were administered in soft elastic capsules he rapidly passed under the influence of the drug and speedily recovered from his malarial attack. The well-known fact that the administration of laxatives which have a particular effect upon the liver is often necessary to get the full effect of quinine need not be reiterated here.

Again it is by no means an uncommon thing for quinine to be administered for the relief of fever on the general supposition that the cause of said fever is malaria, when careful investigation will reveal the fact that the malarial parasite is in no way responsible for the illness, and that the disease is in reality typhoid infection or tuberculosis. It should be, as is well emphasized by Manson, a therapeutic rule that given a case of suspected malarial fever in which quinine fails to give relief in the proper dose at the end of a few days, the physician should arrive at the conclusion that the fever is not malarial in origin, but due to some other cause; and there is certainly no justification for giving massive doses of quinine day after day to patients who are simply suspected of being the hosts of the malarial germ. Manson emphasizes Osler's opinion in this respect by quoting his experience, viz.: that he rarely saw instances of hepatic abscess in which quinine had been given for long periods of time upon the supposition that the septic fever was malarial in origin, and our own experience has been identical with his. In every instance which has come under observation where quinine has been given persistently on the supposition that the patient had malaria the future history of the case has revealed the fact that the patient was either septic or typhoid. When, therefore, it is difficult to cinchonize a patient by the use of small doses of quinine, we believe that its hypodermic injection is justifiable for a few doses if a therapeutic test must be made; but we are firmly convinced that its continued use in a case in which malarial infection is simply suspected is an error in therapeutics.

THE ABUSE OF NITROGLYCERIN.

On more than one occasion in the editorial columns of the THERAPEUTIC GAZETTE we have pointed out the fact that from having been accustomed to employ minute doses of strychnine, many members of the medical profession are going to the other extreme and employing doses which a few years ago would have been considered actually poisonous; and further than this, have been administering it for long periods of time as a stimulant in typhoid fever and similar states, which form of administration we believe is therapeutically erroneous. Side by side with this mistaken use of strychnine is, we believe, the abuse of nitroglycerin, which for some curious reason has obtained a reputation in the medical profession as a "cardiac stimulant." Strictly speaking, it is extremely doubtful if nitroglycerin is ever properly considered to produce such an effect. While the first consequences of its influence may seem to be to increase the activity of the heart, its dominant influence is exercised upon the blood-vessels so that they are relaxed, and as a consequence the heart has less work to do. It is manifest, therefore, that when nitro-

glycerin is administered to a patient suffering from a failing heart, it may produce advantageous results not because it acts as a cardiac stimulant, but rather because it diminishes the work of the heart by lessening the pressure of the blood-vessels and so diminishing the resistance in the circulation of blood.

In instances in which a high arterial tension is producing difficult cardiac action, nitroglycerin is therefore one of our most valuable medicaments, and in all probability a majority of human beings would be better for its use in the advanced years of life because of this well-known physiological effect. On the other hand, to administer the drug to patients suffering from cardiac failure of an acute type as a result of accident or collapse arising from other causes is not only an abuse of the remedy but is quite as well qualified to produce harm as to produce good, since under these circumstances the circulatory failure may be as dependent upon vascular relaxation with an inability of the heart to fill dilated blood-vessels as upon any direct cardiac failure in itself.

It is difficult to find an instance in which a careful consideration of the physiological action of a remedy leads more readily to its beneficial employment than in the case of the drug under consideration. The rule for the use of this drug, in connection with its influence upon the circulation, should be to employ it when the heart is to be relieved of excessive work, and not to employ it when the heart really needs a direct stimulant, for nitroglycerin is not such a drug.

SURGICAL TREATMENT OF ASCITES.

It is comparatively recently that surgery was credited with at last providing a cure for ascites dependent upon cirrhosis of the liver. Twenty-five years ago V. Eck proposed relieving chronic congestion in the liver by forming an anastomosis between the portal vein and the vena cava, the former vessel being then ligatured before its entrance into the liver. This operation he successfully performed upon a dog, but it is one offering so many difficulties that it was not attempted upon a human being. More recently, Talma and Drummond advocated the modern procedure of forming a collateral circulation, for the congested branches of the vena porta, by means of adhesions between the abdominal viscera, omentum, and parietes. In these adhesions innumerable new vessels develop, conveying the blood from the portal into the systemic circulation through the subperitoneal plexus of veins.

Ito and Omi operated on five cases, opening the abdomen, evacuating the fluid contents, irritating by vigorous friction the omentum and the parietal peritoneum, and securing these two surfaces in position by means of sutures. They state that the results, with one exception, were uniformly bad. In the hope of discovering a technique which might give better results, they conducted an experimental research, the finding of which corroborated those of other observers, to the effect that dogs quickly perished with symptoms of hemorrhage when the portal vein is tied, whether the ligature be placed to the proximal or distal side of the gastrosplenic vein. When the ligature, however, is applied in successive stages, so that the vein is gradually closed, the animals survive, unless the ligation be practised on the proximal side of the entrance to the gastrosplenic vein. In the latter case they perish, but more gradually than when an immediately occluding ligature is employed. When ligation was preceded by omental fixation, either intra- or extraperitoneal, some animals perished and some survived. The experiments seem to show that extensive adhesions between the abdominal viscera and the peritoneum were essential for the development of an efficient collateral circulation, together with dilatation of the normal anastomoses. The omental fixation in itself plays a minor rôle, and is quite insufficient to relieve the congestion of the portal system. Animals which developed these extensive adhesions survived after ligation of the portal vein, living for several months, and even seeming to gain weight.

Umber has lately published a case corroborating these findings, in which the portal vein was obliterated. Autopsy performed years afterward showed extensive adhesions of the omentum and the liver, kidney, spleen, bowels, and abdominal wall. Moreover, the diaphragm and the stomach were adherent to the liver, the

intestinal loops to each other, and also to the pancreas and the gall bladder.

The practical deductions from this study of the reported cases, and from many cases having an unsuccessful issue but not reported in the medical journals, are to the effect that the operation is usually delayed to a time when the chances for even operative recovery are slim; that fixation of the omentum alone, either to the parietal peritoneum or into a pocket between the parietal peritoneum and the enveloping muscles, cannot be depended upon as a means of supplying a sufficient collateral circulation; that the adhesions should be as extensive as possible, and should involve the intestines, liver, spleen, stomach, and omentum, together with the parietal peritoneum. Ito and Omi suggest, as a means of accomplishing these widespread adhesions, suturing of the omentum to the parietal peritoneum and packing of the abdominal cavity with a huge strip of gauze, which should be removed in twenty-four hours. This is to be preferred to scarification or curetting, which, to be efficient, is likely to occasion bleeding from the widely dilated veins. The suggestion of Edebohls, to encourage adhesions between the liver and diaphragm, is one which commends itself. On theoretical grounds the safest and most efficient method of accomplishing adhesions would be by rapidly swabbing the surfaces with pure carbolic acid, following this immediately with applications of alcohol.

Though the mortality of the operation is distressingly high, and the successful results form a small percentage of the whole, it is probable that when it is undertaken earlier, and when the end in view is more efficiently accomplished, it may even merit the amount of confidence which the reports of the first few cases seemed to justify.

OPERATIVE TREATMENT OF EPILEPSY.

Epilepsy, as Winter points out, is as old as history and as widespread as the human race, being found beneath the tropical sun and the northern lights. Moreover, he ingeniously notes that the doctor of a former time who found in the blood from the head of a human recently decapitated, or in worms broiled in butter, specifics against this malady, would have looked upon the modern surgeon's therapeutics with the same amused amazement that we now look back upon his own, and perhaps with reason, since results in the present day are little better than those of a former age, the disease still remaining incurable, in so far as essential or genuine epilepsy is concerned. The brilliant results obtained by trephining in some cases of traumatic epilepsy have been so frequently obscured by an application of the same method to essential epilepsy that their effectiveness and applicability are sometimes forgotten.

In the pure, neurotic forms of the disease, without ascertainable external or internal cause or lesion, surgery has been so universally unsuccessful that the disease has been relegated to palliative treatment at the hands of medical men. Exceptionally marked palliation has followed this treatment. There has lately, however, been a fresh interest in the surgical treatment of this affliction incident to reports of ligature of the vertebral artery, resection of the sympathetic, and craniectomy, designed for the cure of the attacks.

Since even microscopically no alterations can be found in the brain in cases of pure epilepsy, the explanation of the paroxysms is based on the assumption that they are due to circulatory disturbances, some holding that brain congestions, others that cerebral anemia, are responsible. The theory of anemia is perhaps the most plausible one, since the simultaneous ligaturing of the carotid and vertebral arteries in animals is followed by epileptic attacks. Rapid bleeding produces the same effect. In humans, in the very beginning of the convulsions, there is usually pronounced pallor. Doyen while trephining a patient noted a pronounced anemia, which ushered in convulsions in the midst of his operation.

This sudden anemia should theoretically be prevented by resection of the sympathetics, since thus would be prevented a contraction of the cerebral arteries.

The physiologists find that the sympathetic nerve contains vasomotor and vasoconstrictor filaments supplying the blood-vessels. These are originated in the gray substance of the spinal cord, principally in the region of the medulla oblongata,

traversing almost the entire length of the white substance, and sending downward branches which communicate with the sympathetic, thence sending to the walls of the arteries motor filaments. These filaments maintain a certain tension under varying conditions of intravascular pressure. On section there is an arterial dilatation; when stimulated there is an arterial contraction. Bernard has shown that on section of the cervical sympathetic there is an arterial dilatation accompanied by congestion and increased temperature of the head on the sectional side; whilst irritation of the sympathetic causes vascular contraction and falling temperature. If, then, epilepsy is begun by cerebral anemia, resection of the sympathetic is theoretically indicated. It happens, however, that in addition to the vasomotor nerves, the sympathetic contains sensory filaments which carry the impression of visceral irritations to the brain. (Hence, by section of these nerves, the disturbing effects on the brain of irritation lesions of the intestines or other viscera may be prevented.

Jonnesco has contributed a most noteworthy paper upon this subject, embodying the results of ninety-seven sympathetic resections. He holds that he thus converts cerebral anemia into a permanent congestion, and prevents the development of reflex epilepsy. He believes it needful to remove the three ganglia and a portion of the nerve lying between them, and this from both sides, since thus the nerves supplying the carotids and the vertebrals are sectioned.

Chipault has performed twenty-six such operations, whilst Winter contributes nine.

The operation is tedious, but not dangerous provided the resection of the lower ganglia be carefully accomplished. Immediately following the operation there develops congestion of the head and increase in the skin temperature, whilst the conjunctiva becomes injected, the pupil narrowed, and there is ptosis on the side operated upon. The narrowing of the pupil and the ptosis are dependent upon paralysis of the dilator of the pupil and of the smooth muscular fibers of the upper part of the eyelid, which are innervated through the sympathetic. These symptoms are all transitory and disappear in from five to seven days, with the exception of slight ptosis, which often persists. No after-effects beyond this are noticed.

The patients observed for three or four years have shown no changes. There are apparently no deaths directly attributable to the operation.

Winter has collected 213 cases of sympathetic resection for the cure of epilepsy. From this number he eliminates ninety-one cases which were reported shortly after observation, or were not subsequently followed, leaving 122, of which number eight, or 6.1 per cent, have remained well for three years or over. Seventeen cases are reported as temporarily cured, this word implying that a period not longer than one or two years has passed since operation; twenty-three (18.9 per cent) were improved, this term implying that the attacks were markedly less in number and severity; seven (5.7 per cent) died, though in no case could death be directly attributed to the operation; and sixty-seven (54.9 per cent) were not improved.

These results, though not brilliant, are worthy of careful consideration when compared with statistics from the large sanitarium of Bielefeld, where of 8000 patients treated by bromide 1.72 per cent were cured, and 3.35 per cent improved.

The operation is so new that neither the technique nor the indications for it can yet be accepted as definitely setttled, though Vidal, basing his opinion on animal experimentation, finds that results would be best in the so-called toxic epilepsy. Amyl nitrite serves as a prognostic means, those cases in which the spasms are aborted or mitigated by this drug being most likely to be benefited by sympathetic resection. It is likely that the results will be better when the operation is conducted before the epilepsy becomes confirmed.

This operation might be received with more favor were not the memory of the brilliant promises and poor fulfillment of trephining and craniectomy still comparatively fresh. None the less, a careful study of the elaborate case reports of Winter commands respect for this measure, and would seem to justify a trial of this method of treatment, which has been most successfully applied to exophthalmic goitre.

Reports on Therapeutic Progress

MEDICAL TREATMENT OF CANCER OF THE STOMACH COMPARED WITH THAT BY OPERATION.

KRONLEIN is quoted in the *Medical Press and Circular* of May 7, 1902, as saying that since the hopes raised twenty-two years ago by Billroth's first successful resection of cancer of the stomach, opinions are now again gradually becoming pessimistic. Even among surgeons there are doubts. He has thought therefore that an inquiry and a balancing of the results would be useful. Is operation curative or palliative? Can life be prolonged if not saved, or only made bearable for a time? He has collected notes of 264 cases, of which 195 had been operated on, whilst 69 were not operated on—54 because operation was not admissible, 14 because they declined to submit to it. Exploratory laparotomy was performed in 71 cases with 7 deaths, gastroenterostomy in 74 cases with 18 deaths, and gastrectomy in 60 cases with 14 deaths; total deaths, 39=19.4 per cent. As regards permanent results he has only failed to obtain information as to four per cent of the cases. The average duration of time between the first appearance of symptoms and admission into hospital was nine months. If patients were now submitted to operation the average duration of life was another 104 days; so that the average life from onset of symptoms was about one year. Patients went, therefore, first to the surgeon when three-fourths of their space of life had already run out. After gastroenterostomy the average existence was 193 days, a prolongation of about three months. After gastrectomy they lived 420 days, a lengthening of life of about fourteen months. Of the gastroenterostomy cases nine are still living, and of the gastrectomy thirteen. Of these one was healthy in the eighth year after operation, one in the fourth year, two in the third, three in the second, and six in the first. As recurrence took place late in carcinoma of the stomach, freedom from disease for three years cannot be accepted as a permanent recovery. The figures show at least that surgery offers some improvement on the hopeless outlook of internal treatment only. It not only prolongs life, but renders it more bearable. This is especially the case in gastrectomy, which renders even a radical cure possible.

The speaker concluded with the wish that the operation, like that of extirpation of the vermiform appendix, might become more popular, not only with the surgeon, but also with the public. With early operations even better results might be obtained.

DYSMENORRHEA.

The *British Medical Journal* of May 17, 1902, contains an article by HERMAN in which he gives the following advice:

Spasmodic dysmenorrhea has no tendency to spontaneous cure. A patient has been known to suffer from it throughout the whole of her menstrual life. In cases of exceptional severity it may grow worse. About twenty-five years ago the writer saw a patient, then aged about forty-five, who had suffered ever since her catamenia began from pain every month so severe as to make her vomit. In her early youth she consulted Sir James Clark, who was at that time physician to the Queen, and was by him advised not to have any local treatment. As she got older the monthly attacks of vomiting came to last longer and longer, till at length she was almost continuously sick. In some cases in which pain has lasted long and been severe it has seemed that the body of the uterus was larger than in most nulliparæ, as if some hypertrophy had taken place. But it is so difficult to be sure of a slight increase in size that this is only a conjecture.

The natural cure of spasmodic dysmenorrhea is by pregnancy. But the disease is often accompanied by sterility, which may be cured by the dilatation. In about one-third of the writer's patients who were married and sterile, the cure of the dysmenorrhea was followed by pregnancy.

The best drugs for the relief of uterine colic are antipyrin and phenacetine. In slight cases these give adequate relief, and as we know not of any harmful results from their occasional use, if these drugs relieve there is no need for further treatment. If these drugs fail, powerful narcotics, such as morphine or chloroform, will, if given in sufficient doses, quiet the pain, and cases have been known so bad that the pain could not be otherwise controlled. But it is a bad thing for a young woman to use these drugs every month, and if this is necessary, local treatment which will remove the pain is preferable.

In a few cases the writer has found that guaiacum removed the pain. He gives ten grains of guaiacum resin in a tablespoonful of malt extract, twice or three times a day, beginning a week before menstruation is expected. He does not know how this drug acts, nor how to pick out the cases that it will cure; but he knows that it sometimes will cure.

The local treatment of spasmodic dysmenorrhea is to dilate the cervix. This is best done by the passage of bougies. In most cases the cervical canal will admit a No. 6 bougie easily. A little resistance is usually met with when about No. 9 is reached. When a bougie has been passed which entered with difficulty and fits tightly, after it has remained two or three minutes in the canal it will be loosely held and a size larger can be passed. The writer has generally continued the dilatation until the bougie met with considerable resistance. This usually begins with the passage of No. 12 or thereabouts. He knows not what is the minimum dilatation that is sufficient to cure. He has known the passage of a No. 8 bougie, in a case of spasmodic dysmenorrhea and sterility, to be followed by pregnancy. Before the introduction of dilatation as a means of treatment it was known that occasionally menstruation could be prevented from being painful by the passage of the uterine sound shortly before its occurrence. Hence extensive dilatation is not always necessary. The enlargement of the canal that dilatation produces lasts for some months, and one would suppose that the larger the dilatation the longer will the effect last, but the author has few facts with which to support this opinion.

The cervix does not always yield to the dilating agent with the same readiness. In about one-sixth of his cases the author has it recorded that unusual resistance was met with. The fact of such unusual resistance does not in his experience modify the prognosis.

Dilatation does not invariably cure. The author has gone through some records of cases to find out what proportion of cases are cured. He found that in at least two-thirds of cases benefit follows. That no relief followed in one-third of the cases dilated does not imply that one-third of cases of spasmodic dysmenorrhea are incurable; it is partly accounted for by some cases having been dilated in which the dysmenorrhea was not of the spasmodic kind. In some of these cases the patients' statements may have been misleading; in others, diagnosis was known to be doubtful, and the dilatation was done either because nothing else offered any prospect of benefit, or for some reason other than the cure of the dysmenorrhea. But allowing for the inclusion of these cases, it must be admitted that some cases of spasmodic dysmenorrhea are not cured by dilatation. Some cases are not cured even by pregnancy. The author believes that he is within the truth when he states that cure follows in three-fourths of the cases. Among his cases in which the disease was primary (that is, dated from the beginning of menstruation), the proportion of cures was larger than among those in which the pain began to be felt at a later age. How long does the benefit last? It is so difficult, for reasons that need not be gone into, to keep such patients in communication with their physician that nothing very exact can be said about this. The cure may last throughout the patient's whole menstrual life. One patient, whose cervix the author dilated in 1878, she being then aged twenty-seven, he saw in 1900. She had menstruated with little or no pain ever since the dilatation, and the irregularity of the menopause had begun. This justifies the assertion made. In some cases the cure is temporary only; the pain returns, and is again removed by further dilatation.

TREATMENT OF ECLAMPSIA.

In the *Therapeutische Monatshefte* for April, 1902, VEIT asserts that we do not yet possess a rational treatment of eclampsia, because the exact nature of the disease is still unknown. The treatment therefore must be such as is found to be the best from experience. The main object is to check the attacks and obtain a spontaneous labor. Some say that expectant therapy is the best, and as soon as the child is born spontaneously the disease is at an end; others on the contrary say that we must terminate the pregnancy, for only then will the attacks cease. In Veit's opinion both are wrong. Neither is a good treatment. Morphia is advised by G. V. Veit, and Cæsarian section is advised by Halbertsma. None of these

means can be applied to every case of eclampsia.

In treating any given case, first of all the strictest antiseptic rules must be observed during labor, because eclamptic patients are particularly predisposed to puerperal infection. Secondly, the quantity of food and remedies per os must be limited, as the somnolent patients are threatened with aspiration pneumonia. Thirdly, each vaginal exploration should be made under narcosis in order to avoid irritation. These are the prophylactic measures which the author usually follows. The treatment itself depends upon the general and local conditions of the patient, and especially upon the dilatation of the cervix. When the os is totally dilated and the presenting part of the fetus is high up in the pelvis, in spite of the good general condition of the patient at the onset of the first attack of eclampsia, the extraction of the child should be done under narcosis. When the external os is not completely dilated, our conduct will depend upon the state of the cervical canal. If the last is totally soft above the external orifice there is no danger in dilating the cervix; this can be done with two fingers or with a slight cut in the sharp pendulated border of the cervix. At the first eclamptic attack delivery should be done at once. When the cervix lets in only one finger and the canal is yet intact, our conduct should depend upon the patient's condition.

At the beginning of eclampsia every effort should be made to tear the membranes in order to diminish the tension of the uterus and allow the pain to become stronger. If in spite of these measures more attacks follow, it is recommended to apply a dilator. As soon as the canal is dilated, extraction should be made at the first convulsion. In this case administration of morphine is indicated, not with the expectation of complete removal of the attacks, but to render them less severe. Some obstetrician reported aggravations of symptoms after injections of morphine. Although it is difficult to form a definite opinion, it is nevertheless certain that it renders the attacks less severe; it is therefore only a symptomatic remedy. If we have recourse to it occasionally, it should be used as early as possible. Among other narcotics we may mention chloral hydrate (per rectum), which can be administered in 15-grain doses repeatedly. Little benefit can be obtained from the bromides, veratrum viride, or amyl nitrite. Venesection has been recently recommended. A rapid cure cannot be promised, but amelioration of symptoms, and especially lessening of cyanosis, can thus be readily obtained. Some follow up the venesection by saline infusions, as the disease is supposed to be of toxic nature. The practical importance of this treatment is still slight. Next to this treatment are hot baths, which gained the utmost confidence; their effect is produced by diaphoresis. If hot baths cannot be employed, Jacket advises the use of wet sheets.

In spite of their favorable influence, the means mentioned cannot cure eclampsia, no matter how correct the theoretical considerations are: the complete practical result has not been obtained of any of them. Cæsarian section and accouchment forcé are advised by some, but in the author's opinion they cannot be applied to uncomplicated cases of eclampsia. For the last eleven years, among 11,000 confinements, he observed fourteen cases of eclampsia, and only one died; it makes a percentage of 15.8. Among operated cases the mortality is very high. However, in the hands of skilful operators Cæsarian section and accouchment forcé are not always fatal.

The conditions are different when with a narrow cervical canal the convulsions increase in intensity and frequency, the labor does not advance, and the patient's condition becomes aggravated. The choice of the method will depend upon the patient's surroundings. The author was called to the country to see a patient: Cæsarian section would imperil her life because of surroundings unfavorable to an operation. With one finger in the cervix he took hold of one foot and extracted the child. Combined version in such cases is recommended. Dührssen obtained good results with cervical incisions and vaginal Cæsarian section; others, on the contrary, obtained less favorable results. In case the cervix is entirely closed, a question arises whether eclampsia has anything to do with the pregnancy. Narcotics should be given then and patients kept under observation. Should the attacks repeat themselves in a threatening manner and the patient's condition become aggravated,

while the cervix is still closed, pregnancy is at fault. Then the classical Cæsarian section is indicated in preference to the vaginal route. Here Cæsarian section is easier and less complicated than a confinement through the vagina with a closed cervix.

These various ways of treatment are in accord with the most modern views on the subject. It certainly does not follow that they are perfect and complete. Our efforts should be directed toward the pathogenesis of the affection, as well as to a better study of the normal anatomy and physiology of pregnancy. The method of study of cytotoxins is particularly worth mentioning because we find in normal pregnancy, and especially in eclampsia, certain cells in the circulation of the mother, under the influence of which antitoxins are formed. From researches the author made in conjunction with R. Sholten, they were astonished to find albumin in the urine after the placenta was transplanted in the abdomen. When it will be possible to show that the albuminuria of pregnancy is analogous to the cytotoxic albuminuria produced experimentally, we will have in our power the foundation for a new therapy which may lead to a proper understanding of the affection, but unfortunately the time has not yet arrived for a definite opinion on the subject.

INTRATRACHEAL INJECTIONS IN THE TREATMENT OF BRONCHITIS.

In the *Physician and Surgeon* for February, 1902, ANDERSON says that after more than two years' experience with this method he has found intratracheal injections very efficacious in a very large majority of cases of bronchitis, and believes that a sufficiently large number of cases have been treated to warrant definite conclusions. Before outlining the classes of cases in which this method has been found of especial value, it might be well to give briefly the method that has been used by the author. The solution is injected between the vocal cords by means of a suitably curved cannula attached to a syringe. The injection is made while the patient takes a gradual inspiration. The cannula is guided by the laryngoscope as in making the laryngeal application. It is essential that the solutions be non-irritating. Pure olive oil is used as a vehicle. One is limited to the use of those drugs that are not too irritating and are soluble in the oil. As experience increases new combinations are found that are of service for this method.

The formula used more than any other is guaiacol two per cent, and camphor-menthol five per cent, in olive oil. The solution should be filtered through cotton to remove any sediment, and if properly made it should be clear and of the same color as the pure oil. When cold it will be a little cloudy. The solution should be sterilized by placing it in a hot-water bath for about forty minutes. Ichthyol, creosote, and iodoform have been used in two-per-cent solutions, either alone or with camphor-menthol. The injections are usually made daily at first, and, as the patient improves, every other day. One to two drachms is injected at each sitting, though at first it is advisable not to employ more than one drachm. The solution should be warmed to body temperature before it is injected. If the throat is irritable a four-per-cent solution of cocaine may be sprayed into the throat before giving the injection. It is very seldom necessary to use cocaine after one has become skilful in this method of treatment. It is surprising how little irritation or coughing is caused by the injection. Only rarely is severe coughing produced, and when it does occur it is often due to the unskilful introduction of the fluid.

The writer has found this method valuable in most cases of bronchitis. In the congestive stage of acute bronchitis it has not proven as regularly useful as in the later stages. It is apt to cause coughing, which usually continues only a few minutes, when used during the congestive stage, but the soothing effect and sense of relief which soon follows is very grateful to the patient. As the congestive condition passes off we find great benefit in its daily use by lessening the cough and expectoration. Many patients are entirely relieved by a few injections.

THE TREATMENT OF ENDOMETRITIS.

SMYLY sums up his views in regard to this matter in the following words in the *Glasgow Medical Journal* for May, 1902:

Septic forms require active antiseptic treatment.

In those forms of chronic endometritis in which hemorrhage is a prominent symptom, especially where an exact diagnosis is required, the curette is advisable.

Where leucorrhea is the chief characteristic, or where the curette has failed, a powerful caustic is required; and of those which have proved effectual, chloride of zinc is perhaps the most certain. But we may hope in the near future to see it replaced by some better method, possibly by formalin and atmocausis.

EUCALYPTUS IN THE TREATMENT OF DIABETES.

In the *Glasgow Medical Journal* for May, 1902, FAULDS details his investigations as to the value of eucalyptus in diabetes mellitus.

What seems very interesting is the fact that, when the patient gets a fresh warm infusion, the sugar at once drops in quantity, and in some cases from 60 grains to half a grain per ounce. It is evident, then, that there is not any one of the substances contained in this infusion that arrests the excretion of sugar, but evidently a combination of them have this effect—*i.e.*, there seems no alkaloid in it which, when given alone, has the power of influencing the amount of glucose in diabetic urine. Then how and why does the fresh infusion act so promptly? The writer thinks that, just as a newly infused cup of tea is an enjoyable beverage, not on account of the action of its alkaloid theine alone, but because it contains, in addition, a mixture of a volatile oil and tannin, so does tea from eucalyptus (which we know has antiseptic properties) act in checking tissue metamorphosis, which is so active in this disease.

The causation of glycosuria is still wrapped in mystery, but it is probably produced by a variety of causes, such as gout, cold, nervous exhaustion, and overindulgence in food and drink. In fact, any condition that tends to limit or prevent the appropriation of sugar must lead to an excess of sugar in the blood, and thus to glycosuria. In these cases it seems that in the earlier stage the eucalyptus treatment will prove beneficial; but where the disease has been inherited, or where the patient's antecedents or immediate relatives are neurotic (in which case the probable cause is a progressive degeneration of the vasomotor centers of system which will disturb the equilibrium of the blood-supply to the hepatic cells), this treatment, like others, will be of no avail. And such has been the author's experience; for, in forty-one cases treated with eucalyptus, eleven came from talented families, or were neurotics; seven were hard brain-workers, and four inherited the actual disease. In these twenty-two the eucalyptus treatment had no effect. Add to these four cases in which the disease had gone to the stage of approaching coma before this treatment had been commenced, and we get the total number of unsuccessful cases. The remaining fifteen showed a total disappearance of the disease, and so far as can be judged are completely cured.

THE USE AND ABUSE OF ETHER AS A GENERAL ANESTHETIC.

That well-known anesthetist PROBYN-WILLIAMS gives his views in the *Edinburgh Medical Journal* for May, 1902. He thinks that the abuse of ether may be considered under the following four heads:

1. It is given to unsuitable subjects: such as those to whom its stimulating effects might be prejudicial, as patients suffering from advanced atheroma, or from thoracic aneurism; or to those with the mucous membrane of the respiratory tract in a delicate or inflamed condition, such as young infants, or persons suffering from subacute bronchitis.

The swelling of the mucous membrane of the respiratory tract, through the congestion which sometimes follows the inhalation, may seriously diminish the caliber of a trachea which has already been narrowed by pressure from without, as from an enlarged thyroid gland, or by obstruction from within, as from the membrane of diphtheria; and in all these cases ether should be withheld, as it should also when there is marked cellulitis of the neck, for this external condition is frequently accompanied by some congestion or edema of the larynx, and this may be so increased by the irritating nature of the vapor as to render it a serious obstruction to respiration in the chest, as by a large accumulation of fluid in the pleura; or in the abdomen, by ascites. In both these instances, if for some reason ether is thought advisable, the limitation of the

pure supply of fresh air by a "closed" inhaler should be avoided, and a Rendle's mask should be used.

2. Ether is unsuitable as an anesthetic for certain operations; as, for instance, when the secretion of much mucus and saliva would be a great hindrance to the operator, such as in the repair of a cleft palate; or when it is desired that the part should be as bloodless as possible, as in operations on the brain, the removal of the thyroid gland, etc. For the performance of some abdominal operations, the deep and free breathing embarrasses the surgeon. In these cases, though the anesthesia may with advantage be induced with ether, a change should be made, when necessary, to a mixture of chloroform alone.

3. One of the gravest forms of the abuse of ether is that in which the unskilled anesthetist unduly pushes the drug beyond all necessary limits, and "soaks" the patient. When once the anesthetic state has been satisfactorily established, the amount of the drug required to maintain it is often very small. Indeed, students constantly need to be reminded that their object should be to use as little of the drug as may be necessary to obtain a state of unconsciousness, satisfactory both for the patient and the surgeon, and not to see how much may be inhaled with safety.

4. Perhaps the commonest form of the abuse of ether is that in which its administration, though eminently suitable for the beginning of the operation, is continued for too long. By this means the patient may gradually become "waterlogged" with secretion, and be in a very favorable condition for the supervention of bronchitis on his return to consciousness. Even if bronchitis does not follow, so much secretion may remain in the respiratory tract to be coughed up and expectorated that the patient will have little rest during the part of the most important period of his recovery.

After an abdominal section coughing is not easy for any one, nor is it so when the chest is tightly wrapped in bandages, as after an amputation of the breast; nor is the muscular effort which must be made in coughing likely to benefit the healing of a wound in any position.

Another effect of the administration of ether, given either too freely or, more generally, for too long, has lately been pointed out, namely, the severe shock which occurs after the removal of the drug. In other words, the stimulating effect of the ether may so mask the shock which the prolonged operation is really causing that all seems well till the anesthetist may have even left; but when the patient is back in bed, the shock may manifest itself to such an extent that the difference between his condition when inhaling the ether and after its withdrawal may be great. This, of course, does not diminish the great value of ether in warding off shock in comparatively short operations in which it may be expected. But when the operation is likely to be protracted, it is probably better to change, at the right time, from ether to chloroform, or better still, the A. C. E. mixture; so that a more accurate idea can be formed of the way in which the patient is really standing the operation, in order that, when necessary, the surgeon may be warned in good time that part of the procedure should if possible be curtailed, or at any rate that no time should be wasted in comparatively unnecessary details.

A NUTRITIVE DRINK FOR FEBRILE AND WASTING DISEASES.

In the *Edinburgh Medical Journal* for May, 1902, LEFTWICH, in discussing this important theme, states that the range of choice open to a patient who has been placed upon liquid diet is so restricted that the profession will welcome any suggestion which will have the effect of safely extending it. At present the selection is practically limited to milk, meat tea (prepared either from fresh meat or from proprietary extracts), whey, and barley-water. The last may be said to have no nutritive value; whey is useful in cases of obstinate vomiting. "On beef-tea alone the invalid will starve" (Brunton), and there is further a grave suspicion that its extractives are sometimes toxemic. The sheet-anchor is undoubtedly milk.

The addition to the liquid dietary here proposed is not altogether new, for a brief note upon it appeared in one of the journals some ten or twelve years ago. The experience which the writer has had with it since then has so impressed him with its value that he assures us it deserves more than the very slight attention it received at that time. It may be described

briefly as white-of-egg lemonade, and is at its best when made in the following way: Two lemons, the white of two eggs, one pint of boiling water, loaf-sugar to taste. The lemons must be peeled twice, the yellow rind alone being utilized, while the white layer is rejected. Place the sliced lemon and the yellow peel in a quart jug with, say, two lumps of sugar; pour upon them boiling water and stir occasionally. When cooled to about the ordinary temperature of tea, strain off the lemons. Now insert an egg whisk, and when the lemonade is in full agitation, add slowly the white of egg. Continue the whisking for two or three minutes. While still hot, strain through muslin. Serve when cold.

The white of egg will be found to impart a blandness which makes the addition of sugar almost unnecessary, and this absence of sweetness is greatly appreciated in pyrexial cases, and has its obvious value for diabetics. For non-febrile patients with clean tongues, more than the two eggs may be used to the pint, if desired, but the above is the best proportion in general. It may be objected that the drink is contraindicated where albuminuria is present, and this may be true of Bright's disease; but the author has not found that diphtheria or pneumonia cases exhibit either more or less tendency to this complication than others, and after all no one hesitates to order brandy-and-egg mixture for these diseases. Typhoid fever, again, is a disease in which the vast importance of careful dieting cannot be overestimated, and any departure from routine methods requires grave consideration. The author has never ordered beaten-up eggs for this disease; for in cases where he has seen them administered they appeared to cause distention, and later constipation. Still, many high authorities advise eggs—Ziemssen, *e.g.*, says three eggs a day. The writer, however, believes that it is the yolk of the egg that is responsible for the flatus and for most of the constipation engendered. The former condition at all events has never given him any trouble. Meat extracts, soup, etc., on the other hand, are often very badly borne, and may give rise to profuse diarrhea. Milk, of course, is the grand essential, but how this palls upon the typhoid patients is known only to themselves and to their nurses, whose attendance is often one long fight to get the prescribed quantity taken. Moreover, the patient is frequently unable to assimilate sufficient to balance the terrible wastage of fever, and thus starts his convalescence in an advanced stage of starvation. There can be little doubt that many of the complications of typhoid owe their successful onslaught to diminished resisting power due to this starved condition, while the connection is more direct between the atrophied skin and bed-sores, and possibly between the atrophied bowel and perforation. The writer affirms, however, that a patient who takes plenty of this lemonade, in addition to four pints of milk per diem, will be found to emerge from the pyrexial period without that wasted, hollow-eyed, and skin-drawn look of the typhoid patient, and that after a few days, instead of lying like a helpless log, he will be able to shift himself pretty freely.

The nutritive drink is of very great value in the febrile diseases of childhood. Young children have, in general, a strong dislike to beef tea in any form. When insisted on, it usually has to be forced down, and the exhaustion following the struggle may more than balance its strength-giving properties; but they will drink any quantity of this nutrient lemonade, especially if the proportion of sugar is increased. On the other hand, the use of the beverage is contraindicated in cases of gastric ulcer.

It is not necessary or desirable to let the patient know that the white of egg has been added. The "lemonade" may therefore be offered as a bribe to induce the patient to take milk in proper quantities. Another incidental advantage is that the drink supplies those antiscorbutic properties which have been more or less destroyed by boiling or sterilizing the milk. This is all the more valuable in camp typhoid, where tinned milk is frequently all that is obtainable, and sometimes, as in the recent African war, not even that.

Finally, especially in cases of typhoid fever, care must be taken that the eggs are new-laid, and the lemons absolutely sound. At seasons of the year when good lemons are scarce, the writer has directed the drink to be made with citric acid and the essence. Bottled lemon juice is often a little musty.

VARIETIES AND TREATMENT OF HEMIPLEGIA.

In the *Northwestern Lancet* of May 15, 1902, JONES in a paper with this title gives the following advice:

Syphilis as a cause of hemiplegia is exceedingly frequent. The resulting inflammation of the vessel wall or the growth of a gumma in the vicinity of the vessel is often responsible for a hemiplegia. Usually there are pronounced symptoms—headache, insomnia, paresthesias, transient palsies, and mental confusion. Occasionally such symptoms are wanting, or are undiscovered. In some cases the attack of hemiplegia comes on suddenly, subsiding gradually but completely, thus demonstrating the presence and disappearance of the gumma.

The treatment in such instances suggests itself—vigorous use of mercury followed or associated with iodides pushed to the limit.

Hemiplegia from uremia, intoxication, or infections is best treated by such measures as favor elimination by the skin, bowels, and kidneys.

Water, inside and out, hot baths, calomel, castor oil, and salines are usually sufficient to accomplish the relief, if relief is to be obtained. The subsequent treatment will be symptomatic.

The treatment in the chronic stage of hemiplegia demands the utmost perseverance and vigilance.

Rest in bed is imperative. Too many hemiplegics are allowed to get up before they are ready to make the slightest effort, and before the nervous system has recovered from the shock of the insult to the brain. The patient should be encouraged to lie quietly without making attempts at muscular movements for from four to six weeks. He should not be allowed to test the strength of his limbs, to stand or walk for months, and even when able to sit up and walk with assistance he should be carefully restricted to extreme moderation. The position of the limbs must be watched to prevent dragging of weakened muscles, and to modify the inevitable rigidity of contractions. Skilled masseurs should be employed and instructed by the physician to give the gentlest manipulation of muscles and joint movements so that further injury is not inflicted. Gentle faradization, with a roller electrode to assist in maintaining nutrition of the muscles, is the best and most convenient form of electricity. If galvanism is used, it should be restricted to the nutritional aims. Any attempt to galvanize the brain is a waste of current.

When the time has come for exercise, guard the patient closely to prevent fatigue, both of the nervous and the muscular systems. The diet should be simple but highly nutritious, consisting of such foods as are easily digested and leave but little residue.

When the state of the barometer is a possible factor in the hemiplegic condition, a suitable climate, one free from violent changes, is the one to be chosen.

The environment of the patient must be considered in the after-treatment, and should be selected according to the habits of the individual.

The post-hemiplegic complications, athetosis, aphasia, paresthesia, tremor, convulsions, and emotional states, call for no special comment.

Contractions may be modified by apparatus or tenotomy. Drobnik suggests the transplantation of muscles—*i.e.*,stitching of the tendon of the sartorius, for instance, into the tendons of a paralyzed group.

THE VALUE OF QUININE IN TREATMENT OF WOUNDS.

To the *Münchener Medicinische Wochenschrift* of April 22, 1902, MARX contributes a paper with this title. He reminds us that the antiseptic power of quinine has been known for years. Long before bacteriology entered the domain of medicine the researches of Binz (1867) made us familiar with it. Since then it has been forgotten. The text-books of surgery hardly mention quinine among the antiseptics.

The author attempted to make a personal investigation of this subject, and for this he studied the effect of hydrochlorate of quinine upon bacteria in solutions of various strength. He selected for his experiments cultures of bacillus pyocyaneus, staphylococcus aureus, bacillus anthracis, and mesentericus vulgaris. The result was that the drug as an antiseptic proved to be superior to carbolic acid and to formalin, and occupied a place between formalin and sublimate. Microscopically he could state that not only quinine arrests all movements of bacteria, a fact al-

ready observed by Binz, but also the agglutination phenomena he observed with 0.3 to 0.6 per cent solution of quinine. The author recommends quinine as an antiseptic and styptic. The last property can be demonstrated by adding one drop of quinine solution to a drop of fresh human blood. One can see at once an agglutination of the erythrocytes. A solution of 0.08 per cent is sufficient to bring out the agglutination phenomenon. It can be also demonstrated microscopically. For practical purposes it is very important to know that quinine applied locally is capable to arrest bleeding. The formula the writer uses is as follows: Quinine hydrochlorate, 5.0; spiritus rectificatus, 15.0; aquæ, ad 150.0. A tampon saturated with this solution is applied to wounded surfaces, also in cavities. A half minute is sufficient to arrest bleeding.

If in addition to this property of quinine we take into consideration its antiseptic power, we can readily see the value of the drug. It is well known that we can never obtain an absolute disinfection of our hands. Here we have a remedy which on one side will render innocuous the germs carried to the wounds with our hands, and on the other will help to heal by *prima intentis*. In case of ulcerated surfaces already infected we can nevertheless try the application of quinine. At all events untoward symptoms have not yet been observed by the author from the use of quinine. He also devised a one-per-cent quinine-gauze similar to iodoform gauze; its formula is: Quinine 5 grammes, alcohol 15 grammes, water 170 grammes, and gauze 500 grammes. Its effect is the same as that of iodoform gauze, without of course the odor of the latter.

As to the effect of subcutaneous or intravenous injection of quinine in general septic diseases, phlegmons, erysipelas, the author promises to discuss the subject in a future article.

A word in conclusion: A wet quinine tampon is apt to give an odor; it is therefore advisable not to leave a tampon longer than twenty-four hours. The pharmacological character of the effect of quinine is based upon its ability to coagulate albuminoids in the weakest solutions. So in using the wet tampons we find on the surface of the wounds a fine layer of sterile grayish secreta under which healthy granulations develop. It can be readily seen that a prolonged application of wet tampons of one-per-cent solution of quinine is apt to form a coagulation necrosis. Of course, weaker solutions will give a less pronounced coagulation necrosis.

THE INJURIOUS EFFECT OF CHLOROFORM UPON THE KIDNEYS.

In the *Journal des Praticiens*, No. 15, 1902, RENAUT asserts that young animals with a good resistant power die rapidly from chloroform. They die in syncope, and at autopsy the heart is found in diastole.

But there is one very important point upon which the author lays a particular stress; even in case a syncopal attack could be avoided, a lesion of the kidneys is always present.

If pieces of kidneys taken from an animal that died from chloroform are hardened and fixed by proper reagents, the border of the epithelial cells in the convoluted tubes is destroyed. This observation is, according to Renaut, of extreme importance, as the border of the epithelial cells is to the kidney what the rods and cones are to the eye, which being destroyed will render the eye blind. The kidney therefore losing that border can no more serve as a filter. The integrity of the epithelial cells is absolutely indispensable for a good function of the kidneys. Twenty-five years ago Heidenhain attributed to those cells the property of eliminating urea. We know now that the function of the cells with their intact border is secretion. They extract from the blood certain products. The renal secretion will therefore depend upon the integrity of the cells of the tubules. This important function is impaired by chloroform, when administered as an anesthetic, but the cell is capable of recuperating. It is therefore evident that in surgical operations the kidneys will be injured for a certain time. This fact should always be taken into consideration before an operation. An examination of the condition of the kidneys should be made in every case before surgery intervenes.

In view of this fact anesthesia with ether is preferable to that with chloroform. The author has etherized patients a great many times whose hearts were in diseased conditions, also cases of diabetes

or albuminuria, and he never witnessed untoward effects. What is to fear with ether is only asphyxia or syncope. He is therefore entirely in favor of ether, which presents only one inconvenience, namely, a tendency to vomit for several hours after the administration. This inconvenience can be avoided if the so-called by him "interrupted method" is employed. The last consists first of bringing on a complete narcosis, so that the reflexes are lost. Then the mask is removed and the patient is allowed to breathe air. As soon as he wakes up, the ether is readministered, and so on. This mode of administration can be prolonged as long as desired. In one case he kept the patient under ether during two hours. He arrives at the conclusion that ether is the best anesthetic; it does not injure the heart or kidney, while with chloroform one risks a mortal syncope and renal insufficiency.

THE THERAPEUTIC DIAGNOSIS OF MALARIA.

In the *Lancet* of May 17, 1902, PATRICK MANSON, the great authority in England on malarial fever, asserts that whatever may be the case in certain malignant infections in tropical countries, quinine, properly given, so far as the author's experience goes, never fails to arrest a malarial attack occurring in this country, and this within forty-eight, or at most ninety-six, hours of its administration. Therefore a periodic or remitting fever that persists after adequate dosing with quinine, say for four days, is not malarial. Every one believes, or says that he believes, in the antimalarial virtues of quinine, but it is strange how little confidence some practitioners have in its diagnostic value. Thus, the author has frequently seen in consultation patients with fever presumed to be malarial who have been taking quinine in large doses for weeks or even months, and yet no suspicion about the correctness of diagnosis had been entertained. When asked to see a case of supposed malarial fever of a persistent nature, his first question usually is, "Has the patient taken quinine, for how long, and in what doses?" If he is told, as is often the case, that the patient has had large doses for many days, he feels sure, without seeing the case, that it is not one of malaria. If called on to treat a fever supposed to be malarial, if the fever resists quinine properly given and in full doses for three or four days, his advice is to reverse the diagnosis; the fever is not malarial. Many cases could be quoted in illustration; it is hardly necessary to do so.

There are two important matters, however, which require to be attended to in applying the quinine test: First, the dose must be adequate; secondly, the quinine must be absorbed. In many instances quite an insignificant dose will check an ague. Many years ago, while in practice in the island of Formosa, Dr. Manson ran short of quinine and had to economize his very limited stock. With this object he experimented to ascertain the minimum dose that would check an ague, and ultimately came down to half a grain three times a day. His Chinese patients in several instances said that they were cured by this insignificant amount—so potent is quinine in some cases of malaria.

This winter he had in a hospital a patient suffering from double benign tertian infection.

By a properly timed small dose of quinine it is sometimes possible to eliminate in such a case one group of the parasites without injuring the other group, and so to convert a quotidian ague into a tertian. He wished to demonstrate this to the students at the School of Tropical Medicine. He gave the patient three grains of quinine an hour or thereabouts before an expected paroxysm. Small though the dose was, it killed out, not only the group of parasites which he proposed to eliminate, but the other group as well, and cured the patient.

Quinine as against the malarial parasite is a very potent drug, but for reliable diagnostic as well as for therapeutic purposes it must be administered in much larger doses than those just mentioned. If a fever resists ten grains of quinine given three times a day for four days, it is not malarial.

The dose of quinine should not only be adequate, but we must assure ourselves that it is absorbed. He is quite certain that many of the failures to control malaria by quinine are attributable to neglect of this essential. A catarrhal state of the gastric mucous membrane is usual in severe malarial attacks; such a condition is very unfavorable to absorption. Per-

sistent vomiting is also common enough; food and drugs are alike rejected. To get the therapeutic action and diagnostic value of quinine in such circumstances the drug must be given hypodermically or by enema.

Quinine nowadays is often given in tablet or coated-pill form—a most dangerous method in serious cases, and a most unsatisfactory one for diagnostic purposes. For some time quinine tablets have not possessed the flint-like hardness that used to characterize them a few yeras ago; they are now more soluble, but even lately twice he has seen them fail to be absorbed. In one case the patient developed a severe malarial attack on his way home from the Gold Coast. He took quinine tablets, and persisted in their use after his arrival in London. So much quinine did he take in this way without benefit that both the patient and his medical attendant lost confidence in the drug, and the patient came very near dying. Three or four intramuscular injections of the acid hydrochloride broke the fever, and the patient quickly recovered. In giving quinine, therefore, whether for therapeutic or for diagnostic purposes, we should assure ourselves that it is absorbed.

MALARIA: ITS PREVENTION AND CURE.

M'KAY gives the following advice in the *American Practitioner and News* of June 1, 1902:

As soon as possible a good cathartic should be given, and nothing will act more satisfactorily than calomel and soda. The writer seldom uses more than three grains, and follows this with phosphate of sodium until the bowels act freely. Some of our most learned writers fail to call attention to the use of any form of cathartic, relying wholly upon quinine to prevent the recurrence of the disease. The writer's experience has been that after a thorough purgation we can control the next chill with half the quinine that would otherwise be required, not beginning the use of the quinine until the bowels have acted freely. We need not start our quinine until twelve hours before the paroxysm is due, and by giving it in solution we surely can bring our patient under the influence of the drug in plenty of time. The writer seldom gives more than 24 grains, and the bisulphate is the salt he usually administers. This is more soluble, and has given very satisfactory results. It is put up in syrup of orange, and the patient given four grains every two hours until six doses are taken. It is then stopped for twelve hours, beginning as on preceding day, and giving quinine as before. As soon as danger of returning paroxysm is past patient should be put on a good iron and arsenic tonic, and be instructed to look carefully after the bowels.

In the comatose and algid conditions our treatment must be one to sustain the patient. Start with hot foot-bath and give hypodermic injections of strychnia every three or four hours. Give an enema of hot water, to which a teaspoonful of turpentine should be added. Bismuth cream or cocaine, used as above, will usually control vomiting; however, if these measures fail apply ice poultices to throat and neck of patient. As soon as patient's stomach is in condition to retain anything give a glass of hot milk, also full dose of bromide of ammonia. If we cannot get patient to retain this, give an enema of hot milk and whisky. Sponge the body often with hot water and dilute alcohol. As soon as practicable give five grains of calomel, and follow this with phosphate of sodium, forty grains every four hours until bowels act freely. Never delay the use of quinine longer than ten hours. If quinine cannot be given by stomach, it must be given hypodermically every four hours until stomach will retain same. It it preferable to give the quinine in this way, in order to prevent the occurrence of abscesses usually produced by the hypodermic use of this drug. The use of quinine must be kept up for forty-eight hours, and then a good iron tonic given. A prescription often successfully used by the author is:

℞ Quinine sulphate, 1 grain;
Reduced iron, 1 grain;
Arsenous acid, 1-50 grain;
Strychnine sulphate, 1-40 grain;
Ext. gentian, ¼ grain.

M. Sig.: One every four hours.

Then have patient take phosphate of sodium (forty grains) first thing every morning.

In hematuria use the same treatment as above to control vomiting. Give calomel (one grain) every half hour until six or eight grains are given. Follow with

phosphate of sodium, thirty grains every three hours until bowels are thoroughly cleansed. Strychnine nitrate should be given every four hours. For bloody urine the following has been successful:

℞ Fluid ext. watermelon seed, 2 ounces;
Fluid ext. corn silk, 1½ ounces;
Tincture of digitalis, 4 drachms.
M. Sig.: Teaspoonful every three or four hours.

Apply turpentine stupes to stomach, and give the patient plenty of seltzer water. The skin should be bathed often with warm water. It is seldom necessary to give an opiate in these cases. If fever goes high give a five-grain dose of acetanilid every three hours. Give quinine after twelve hours, and keep up same from forty-eight to seventy-two hours, then put patient on tonic treatment as above. This treatment has saved twenty-eight out of thirty cases of hematuria, and others can get equally as good results if same treatment is carried out.

PRURITUS ANI.

In the *Buffalo Medical and Surgical Journal* for June, 1902, BROWN tells us that in his experience palliative remedies must be employed as occasion requires, the general health of the patient improved by the administration of proper tonics, the patient must be brought to understand that a cure can only be effected by exercise of great patience on his own part, and faithful adherence to the instructions of his medical adviser. Excesses of all kinds must be avoided, the necessity of cleanliness, of moderate exercise in the open air, and employment to occupy the mind must be insisted upon. Habits and foods likely to produce disturbance or injury to the lower part of the intestinal canal must be avoided.

The infinite variety of complications existing with pruritus ani, and the multitude of palliative remedies and remedial agents at our command in dealing with its combinations, prevents giving in detail the treatment of all the affections which give rise to it, but some of the procedures employed as the result of experience may be noted.

The first and greatest agent in all cases is cleanliness. Probably no one measure is productive of as prompt though temporary relief as the application to the itching surfaces of water as hot as can be borne. A wide choice of palliatives is within our reach for such purposes, among which are fullers' earth, sulphur, ichthyol, mercury in its various forms; campho-phenique, carbolic acid, salicylic, glycerin, alcohol, hydrastis, hamamelis, opium preparations, orthoform, cocaine, and eucaine, which may be applied as the conditions of the case call for, and the occasion may demand. These articles should be combined with a base of petrolatum, or other bland media, carefully avoiding the use of everything of fatty nature. In cases of proctitis, arising from whatever cause, we should make frequent applications to the inflamed and congested surfaces of glycerole of tannin or astringents, and direct the use by enema of one or two drachms of raw linseed oil, or a weak solution of zinc acetate or boracic acid twice daily, with instructions to retain the same, or the introduction of suppositories composed of hydrastis, belladonna with cocoa butter, or soothing alteratives, together with the internal administration of tonics.

In cases of proctitis with gonorrheal complications we find balsam copaiba to be the sovereign remedy; it may be administered by mouth or rectum. Chian or spirit of turpentine, cubebs, ichthyol, saw palmetto, santal oil, sulphichthyolate of ammonia, are also remedies of great importance. All papulæ, polypi, excrescences, inverted hairs, and ingrowing skin must be removed. Venereal disease will require constitutional treatment. Tuberculous sores demand supporting measures, with applications of astringent, antiseptic, and stimulating lotions. The radical extirpation of hemorrhoids by dissection, ligation, excision, clamp and actual cautery, or Whitehead's operation is not successful in every case.

Such patients as decline to submit to the knife or anesthetics, the senile and debilitated, and those of a hemorrhagic condition, are susceptible of cure by the application of remedies frequently applied to the diseased tissues, and the use of hypodermic injections. But most physicians in active practice have not the time and patience necessary to devote to these sufferers. When the itching arises from a neurotic condition or from a diseased condition of the brain, spinal cord, or their coverings, bromides, hypnotics and tonics may be prescribed, as the ex-

igencies of the case demand and the indications suggest. Cancer in all its forms must be extirpated, and should the radical operation for its removal be unavailable or inoperative, the permanent relief of pruritis ani will be hopeless. All ulcers in the bowel should be opened, curetted, and cauterized with acid nitrate of mercury, carbolic acid, permanganate of potash, or Churchill's tincture of iodine, and carefully cleansed once or twice daily with peroxide of hydrogen and suppositories of hydrastis, iodoform, or a weak solution of zinc acetate should be injected and retained; if there be much pain some anodyne should be added.

Fistulæ must be obliterated by laying open and dissecting out the channels, or by the injection of escharotics and cleansing daily with antiseptic washes. We frequently meet patients suffering with impacted feces who have taken "physic and saline cathartics" as they say with excellent results for a continued period, but are still enduring the trouble arising from that condition, and find on examination the obstruction still present, but with a groove worn into the masses by the liquid passages caused by these remedies.

For this condition we may order an enema composed of ox-gall, mixed with hot water or castor oil, one ounce, spirits of turpentine one drachm, the yolk of an egg, and hot soapsuds, made of Castile soap, one quart. The patient should be directed to retain this as long as possible and repeat the same frequently. We should aid him by breaking or cutting up the mass with proper instruments. After the patient is relieved it will be desirable to tone up the system, keep the bowels loose, and use intestinal antiseptics, or the same conditions will recur. When due to the presence of worms, treatment for their prompt and effectual removal must be employed.

THE PLACE OF DRUGS IN THE TREATMENT OF STOMACH TROUBLES.

REED states in the *International Medical Magazine* for June, 1902, that dilatation of the stomach may result from pyloric cramp, *i.e.*, a spasmodic contraction of the outlet of the stomach, which is usually dependent upon the combination of a hyperesthetic mucous membrane with a very excessive secretion of HCl (hyperchlorhydria)—possibly also a combination of the former with a very large amount of free organic acids from the fermentation of carbohydrates. In such conditions, and also in gastralgia from excessive HCl or from an unknown cause, it is proper to administer soda, potash, or magnesia, in full doses, and if necessary at short intervals, until relief, so as to neutralize beyond question all the free acid of any kind in the stomach; also belladonna both for its depressing effect upon the secretion of HCl and for its antispasmodic action. A course of arsenic may further be given for its specific nerve and antineuralgic action, though sometimes phosphorus or some other tonic will do as well or better. This line of medication will generally be found more effective than opiates, which are now known to increase secondarily the secretion of the peptic glands, besides stopping the bowels and thus in the end often producing an aggravation of the gastric distress.

For the graver forms of dilatation due to tumors in or near the pylorus, or other mechanical cause of obstruction, surgical intervention alone can be effective, though lavage with antiseptics may palliate for a while.

As to gastritis in the acute form, after putting the patient to bed, stopping all food, and allowing water in small frequent sips only, no medicines are really required as a rule, except when necessary to open the bowels. Then 1/10 to 1/3 grain doses of calomel every half hour or hour, till effect, will do more at first than anything else to hasten the subsidence of the nausea and vomiting, except a warm wet compress over the stomach externally and small pieces of ice internally. When such an attack persists after the calomel has acted, a mixture of bismuth 5 to 10 grains with ¼ to ½ drop doses of carbolic acid, flavored with peppermint, frequently repeated, is very effective.

In chronic atonic gastric catarrh the bismuth and carbolic mixtures will accomplish generally as much as any remedy administered per os, but lavage every day or two with a combination of soda and common salt in the first wash-water (a teaspoonful of each to the quart), followed with a weak solution of alum (½ drachm to the quart), silver nitrate (10 to 15 grains to the quart), or other antiseptic astringent, can do still more in

skilled hands; and the diet is all important. These solutions for lavage should be followed by washing out with a pint at least of plain warm water, and in the case of a silver salt, with a solution of table salt.

Tumors of the stomach are always cases for the surgeon, except when malignant growths have progressed too far before discovered. In the time to come this will less frequently happen, because physicians will in suspicious stomach cases obtain expert counsel at a stage of the growth when the subsequent calling in of the surgeon will not be in vain. In non-operable cases of cancer or sarcoma the main reliance must be on opium. Lavage with antiseptics will prolong life and lessen the misery when the pylorus is involved with resulting dilatation.

In displacement of the stomach, unless the organ has been pulled down by a morbid growth, there is usually no need of surgery. Strychnine and diet will do something; abdominal supports, gymnastics, massage, electricity, and hydrotherapy can do very much. Indeed in all the cases the author has seen, these measures, when they could be long persevered in, have effected a marked improvement, and in most of the cases not too aggravated a virtual cure has finally resulted.

CHLOROFORM AND GASLIGHT.

In the *Journal of the American Medical Association* of May 17, 1902, GALLOWAY writes as follows: A few days ago a druggist handed me a bottle marked "Squibb's Chloroform," and said that it had been returned to him by a physician, with the statement that it contained so much chlorine that it could not be used for anesthetic purposes. The druggist made inquiry and found that it had been used at night in the presence of an open gaslight. The druggist wished to know whether it contained chlorine or any other injurious impurity. On making the appropriate tests it was found to conform to the pharmacopeial requirements, containing no free chlorine, no acid, or other impurity. Some of it was then used to anesthetize a patient for an operation lasting 40 minutes, and its effects were all that could be desired of chloroform.

This is written to call attention again to the irritating gas which is formed when the vapor of chloroform comes in contact with a light or fire. Chloroform is not readily combustible, yet it will burn when the conditions are favorable. The products of this combustion are free chlorine and some very irritating compounds of chlorine, and deaths have been caused by inhaling the mixture so produced at operations where chloroform has been used too freely and without any precautions. All discomfort and danger may be avoided by hanging a towel below the gaslight and keeping the towel moistened with ammonia water throughout the operation. There is no occasion to fill the room with the fumes of ammonia, the amount necessary is small, and it is seldom that the operator or his assistants detect its presence. There is little occasion to question the purity of the chloroform and ether at present in the market, and the frequent complaints about impurities in the anesthetics are usually due to ignorance of some such facts as set forth in this communication.

SALOL IN THE TREATMENT OF SMALLPOX.

Many months ago a number of papers appeared claiming that salol was valuable in smallpox. Recently in the *Glasgow Medical Journal* for June, 1902, THOMSON and LOVE state that salol is said to have proved of great service in the hands of some observers, and Dr. Charles Begg, of Bath, is especially impressed with the efficacy of the drug in all cases of smallpox. In a letter written in May, 1901, to Dr. A. K. Chalmers, he says: "Personally I never saw any more striking results from any drug in any case than the action of salol in smallpox in China, and it is difficult to believe that climate or type can make such a difference as to render the drug useless, especially as it has succeeded in England. I am quite satisfied that the process of maturation and its secondary fever has nothing whatever to do with smallpox, and it seems but reasonable to believe that the process can be arrested just as in any other suppuration."

Unfortunately the result of the salol treatment as carried out by Thomson and Love at Belvidere is that the drug is absolutely useless, and the convictions of Dr. Begg have not been confirmed. Taking

the first series of seven unvaccinated cases, we find that of these three died, giving approximately the usual case mortality seen in Belvidere among unvaccinated persons.

On examining the list of 69 vaccinated cases, we find that among these there were 10 deaths, giving a case mortality of 14.4 per cent, or about 50 per cent higher than that seen over all vaccinated persons admitted to the smallpox hospital in Glasgow during the recent outbreak. This higher death-rate is of course due to the fact that only the more severe types of cases were treated with salol.

But not only was the case mortality uninfluenced by the treatment, but the severity of the attack likewise seemed to be unaffected, for out of the 69 vaccinated cases treated, 20 were confluent, giving a percentage of 28.9, or about 48 per cent higher than was found among vaccinated cases of all grades of severity during the recent epidemic. Of course, the severity of the attack is apparently determined by the susceptibility of the patient, which we could not expect would be modified by any drug. Yet the abundance of the eruption seemed in no way modified even in those cases where the drug was administered from the earliest possible date at which the disease could be recognized with certainty.

Further, the course followed by the eruption, as well as the complications and sequelæ, were precisely those with which we are familiar among smallpox patients who are subjected to no kind of special treatment. The stage of maturation was passed through in almost every case, and in some the eruption became virulently septic. Boils, abscesses, and other limited suppurative complications occurred in the usual proportion of cases, and in point of fact pus formation was in no way hindered or apparently limited.

Even supposing it is true that salol has a power of preventing the pus formation resulting from the presence of pyogenic organisms, it does not follow that the drug will prevent the development of the stage of maturation, for if there is one fact in the pathology of the smallpox pustule more certain than another, it is that the so-called pustule is no pustule in the stricter sense of the term, and that in the majority of cases pyogenic microörganisms, both in cultures and in properly prepared sections, are conspicuous by their absence. In many cases of severe secondary fever the so-called pustules contain practically nothing but lymphocytes, and show a complete absence of the polymorphonuclear corpuscles usually produced by pyogenic organisms.

It is difficult to believe that racial or climatic difference would modify the action of salol in smallpox, though of course this is just possible; but the satisfactory action of salol in China may be reconciled with its unsatisfactory action in the cases observed in Belvidere hospital, if we remember that there is in the East a disease which has been and is now being confused with true smallpox on account of its superficial resemblance to that disease.

TUBERCULAR PERITONITIS.

In a paper in the *American Journal of the Medical Sciences* of July, 1902, SHATTUCK reaches the following conclusions:

1. Tubercular peritonitis may be followed by apparently complete recovery, even if complicated by tuberculosis elsewhere, either under (*a*) purely medical treatment; (*b*) tapping; (*c*) incision.

2. As in other forms of internal tuberculosis, the best obtainable hygienic surroundings are all important. Consequently no patient should be kept in the hospital longer than necessary, especially if more and better air can be secured outside, with proper care and food.

3. We are warranted in trying medical treatment for a time, especially under first-rate hygienic conditions, tapping the abdomen if there is sufficient fluid to cause discomfort.

4. If the patient under a month or six weeks of medical treatment fails to improve, or in even less time if he seems to be losing ground, surgical treatment should be advised.

RUPTURED PERINEUM: ITS PREVENTION AND TREATMENT.

In the *Glasgow Medical Journal* for June, 1902, MONDY says: Of course in primiparæ some tearing generally, though not always, occurs. The fourchette, and perhaps the lowest one-half or three-quarters of an inch of the vagina, may be torn, but further extension of the rupture

can, in the majority of cases, be prevented. When the head comes down on the perineum, if there is more than the usual rigidity in the perineal tissues, or if the vulva is very small, and will not dilate very fully, hot formentations should be applied. By this means the tissues are softened, and thus rendered more elastic. If the pains are very strong and frequent, remove the "pulley" with which the patient has been assisting her bearing-down efforts, and tell her not to bear down so forcibly. At the same time regulate the rapidity of the advance of the head by steady pressure with hands on the perineum. As soon as the perineum is well stretched, and the head is beginning to engage in the vulva, direct the pressure slightly forward so as to keep the occiput well applied to the pubes. As the head advances the hands should be placed over the perineum and fingers around the posterior end of the vulva—that is, the perineum and vulvar orifice should be supported by the accoucheur's hands placed one on each side of the perineum, in such a manner that the palms of the hands grasp the perineum over the head, and the tips of the fingers are placed close together along the limits of the vulvar orifice posteriorly. As regards the rapid delivery of the head with forceps, it is considered better practice to remove the forceps before the head is delivered. Various instruments have been invented with the idea of preventing rupture, but the majority, if not all, through taking up space themselves, tend to cause the very injury they are meant to prevent. A slightly curved piece of metal (nickel-plated) might perhaps prevent the nose or chin from starting a tear in the middle line, but its own edges would be apt to cause one on either or both sides of the perineum. The old-fashioned idea, which is occasionally resorted to even now, of making incisions on each side of the vulva and perineum, running parallel to the labia majora, is a practice which cannot be too strongly condemned. To prevent a single rupture in the median line it seems ridiculous to make two incisions where they will be more exposed to the chance of infection from outside. In cases where the membranes have ruptured early and the labor has been protracted, resulting in a hot and dry state of the vagina, some lubricant rubbed on the inside of the vagina would help to prevent tearing, and would assist the onward progress of the head. For this purpose the use of an iodovaselin ointment containing iodoform, 16 or 32 grains to 1 ounce, is advised.

Assuming that the accoucheur has been unable to prevent a laceration, let us now consider the best methods of treating it. The first question that arises is, What extent of tearing can safely be left without stitching? It is the author's practice in cases where the tear is not more than half an inch in the perineum of average length, or even three-quarters of an inch in one of more than average length—by average length is meant one and three-fourths inches—to leave the rent to heal up by granulation, merely giving orders that the knees be kept tied together, and that some of the iodovaselin mentioned above be applied to the laceration each time after washing the external genitals and perineum. Never douche any case unless either instruments have been used or the hand has been introduced into the uterus for any purpose. When there has been a laceration it is advisable to keep the patient in bed for at least fourteen days, so as to give the tear every chance to heal, and to secure full involution of the uterus and vagina, a state which in itself prevents prolapse of the womb. Always stitch up at once lacerations of greater length than those mentioned above, using as many stitches, placed about three-eighths of an inch apart, as are required to bring the length of the perineum back to its former dimensions. Some authors say that lacerations into the rectum through the sphincter ani should be left till thorough involution has taken place in the uterus, and should then be dealt with by a plastic operation, such as that done by the late Mr. Lawson Tait, or that recommended by Dr. Herman. Such an extensive tear should be stitched up at once. As regards the best needle to use, the author has found the needle on hand to be the best. With reference to sutures, some use silver wire, others silk, and others gut. The silver are apt to cut their way out. The author uses the silk, except for buried stitches or those high up in the vagina or rectum, when he uses gut, as they can be left to dissolve, and thus avoid disturbing the parts. When a ruptured perineum has been left till involu-

tion is complete, one or other of the well-known operations may be undertaken. The one of choice is that described by Dr. Herman in his Diseases of Women, 1899 edition, pages 717-719, as in it there is no loss of tissue.

TREATMENT OF TYPHOID FEVER IN CHILDREN.

In the *American Journal of the Medical Sciences* for June, 1902, HAND and WALKER tell us that in the Philadelphia Children's Hospital the following plan of treatment is instituted in this class of patients: The routine elements of treatment in the cases under the authors' care consisted of rest in bed and a liquid diet. Not knowing of any specific for the disease, the treatment was to a certain extent symptomatic. Using the temperature as an indication of the degree of toxemia, an endeavor was made to combat the effects of the poison and to secure its elimination by hydrotherapy. This was started in the majority of cases as a tub bath, the temperature of the water being 85° F. A cloth wrung out of ice water was put on the child's head and the body immersed in the bath. The duration of the bath was from five to ten minutes, the influence on the temperature and on the pulse being the guide. While in the water the surface of the body was gently rubbed by the hands of the nurses. In a few cases, especially among the younger children, the tub baths were not well borne, and sponging with water of the same or higher temperature was substituted. Sponge baths were adopted at the start in some cases, but they often failed to influence the temperature sufficiently, the tub baths being used later with good effect.

As an added means of elimination they used in about twenty-five of the cases drachm doses of solution of citrate of potash well diluted with water, with the hope also that it would protect the kidneys from the poison as it passed out; of course, it is not asserted that the medicine was of any more value than the water, but no deleterious effect was seen.

In those cases with loose movements an attempt was made to lessen the enteritis by giving bismuth salicylate, in doses of three grains every three hours, sometimes combined with the subnitrate; in this they seemed successful. The salicylate was chosen first with the hope that its antiseptic properties might in some degree lessen the activity of the specific germs in the intestinal canal, but from the course of the cases it would appear these hopes were not fulfilled.

Whiskey was given in almost every case. Without entering into a discussion as to the food value of alcohol or how it acts in fever, the authors believe that many of the cases were benefited by it. The doses ranged from thirty drops for the younger children, to one, or in a few cases two, drachms for the older children, every three hours. This was usually given at the same time with milk, but sometimes the dose was divided, half being given before and half after the bath. In no case was it pushed until the odor could be detected on the breath.

Strychnine was occasionally used as a heart tonic, and one or two cases with heavily coated tongues received turpentine in five-drop doses. Children entering before the eighth day of the disease were given divided doses of calomel until a grain had been taken; after this constipation was overcome with the use of enemas.

Liquid diet was continued for ten days after defervesence was completed, the first addition to the diet being usually milk toast.

Convalescence was aided by strychnine and Basham's mixture; if the tongue remained coated it was made to clear by a mixture of bicarbonate of soda and compound infusion of gentian. As soon as each patient was able to sit up he was sent to the country branch of the hospital, where the life out-of-doors in fresh air accomplished complete restoration to health.

NEW OPERATION FOR RADICAL CURE OF UMBILICAL AND FEMORAL HERNIA.

Whatever be the method adopted to deal with the other structures of the abdominal wall, BROOK *(British Medical Journal,* March 1, 1902) calls attention to the fact that when operating for hernia the aim should be to leave the peritoneum stretched taut without pout or dimple over and around the site originally occupied by the neck of the sac.

In two cases of large pendulous irreducible and painful hernia twenty-eight and

nine months ago, respectively, in enormously stout women, he pursued the following method, which, because of his success, and because of its simplicity, he recommends for further investigation by the profession.

A large elliptical piece of skin, its long axis in the mid-line, is dissected off the tumor, care being taken to avoid buttonholing the sac where adherent to skin. The sac is then isolated as far as the edges of the ring and opened by a transverse incision. The contents having been treated in the usual way, the peritoneum is detached all round and well within the ring, especially around the upper segment, where the separation is extended at least two and a half inches beyond the ring border. The two halves of the sac are then shaped into two flaps, each of which is a little wider, and about two inches longer than the diameter of the ring. The shape and size of the sac or accidental buttonholing may render it necessary to make these flaps right and left instead of upper and lower. In that case the sac will have been opened vertically instead of transversely. This was done in the first case. Through the free edge of each flap running sutures of fishing gut are now passed at intervals of one and a half inches, or in the case of the upper which is destined to lie within the abdomen, at shorter intervals. The ends of each suture are for the time being clamped together with pressure forceps. The two ends of the central suture of the upper flap are mounted on a large semicircular perineum needle. The point of this, protected by the left forefinger, is carried through the ring and thrust from within out through the whole thickness of the belly wall at a point in the middle line about two and a half inches below the ring. The needle is withdrawn and the two ends again secured by a clamp on the surface. This is repeated with each suture of the upper flap, so that the row of double-ended sutures emerging from the skin forms about two-thirds of a circle whose center is a little below that of the ring. The sutures are now pulled up, care being taken that no overriding bowel is caught between the tightened edge and the parietal peritoneum, and the ends tied firmly together over a piece of lead wire bent to the required shape. The lower flap is now treated in the same way, except that the needle with the successive sutures, instead of being introduced into the abdominal cavity, is made to penetrate the abdominal wall from the space around the upper segment of the ring, which has already been prepared, by more extensive separation of peritoneum at this point. These sutures are pulled up and secured in the same way as the others, and the ring is closed by one or more rows of buried sutures.

The result of this procedure is that the weak spot in the abdominal wall, the site of the ring, is backed by two thicknesses of peritoneum stretched straight and taut across it like a drumhead.

The following description of the operation applies to the inguinal variety of hernia:

The sac, having been isolated from the cord, is cut across immediately above the part which it is intended to leave in the scrotum. A running silk suture is passed across it just above the point of section. The two ends of the suture are threaded on an aneurism needle. The latter is introduced into the abdominal cavity through the sac, its point being kept in contact with the inner aspect of the wall till it reaches a point one and a half inches above and internal to the internal ring. Here a little pressure causes it to present beneath the skin. A small incision, one-half to three-fourths inch in length, through skin and subcutaneous tissue exposes the point closely invested with a little process of peritoneum, together with which it has been readily forced through muscles and aponeuroses. The peritoneum is nicked with the point of a knife, and the small hole slightly stretched with a sinus forceps, and the aneurism needle pushed through. The suture ends are now disengaged, the needle withdrawn, and by traction on the suture the sac is inverted and pulled well through. This is now twisted through one or two turns, the little process of parietal peritoneum pushed back with fine sinus forceps to its proper level, and the sac cut off and the stump fixed by one or two buried sutures. The other structures concerned in the hernia are dealt with by whatever method is preferred.

This proceeding does away with the necessity of slitting up the external oblique fascia roofing in the canal.

Unknown to Brook until the publication of his paper, Kocher, of Berne, has for some time been practicing this operation for inguinal and femoral hernia, he having abandoned the operation described as his in the most recent text-books.

SEVERE HEMATURIA FROM MOVABLE KIDNEY.

Remarking that a case of loss of blood as a result of mobility of the kidney in such a degree as to induce serious anemia is a great rarity, CABOT *(Boston Medical and Surgical Journal,* March 6, 1902), reports an instance of serious interference with the renal circulation due to the downward displacement of the kidney of a woman 43 years of age.

For several years prior to her being seen by Cabot the patient noticed, when she was tired, a dull pain in the abdomen, rather to the left of the median line. On several occasions she noticed a little blood in the urine, but this condition was at first not persistent. Later there was hematuria, lasting once for two days, and in about three months the hematuria began again with considerable violence. The urine at first was bright red, but after the first few days became dark purple, almost black. It now also began to contain clots.

With the patient resting in bed, ergot and other hemostatics were administered, but the hemorrhage continued in unabating amount. There was no evidence of inflammation or much irritation in the bladder. The only discomfort was from the passage of the clots. There was decided loss of appetite and the power to take food, while the strength steadily failed.

A thorough examination was made, as a result of which the right kidney was felt, somewhat enlarged, in an abnormally low position. The lower pole of the organ reached to just above the brim of the pelvis and the upper pole was still covered by the edge of the liver and the ribs. The kidney was not very sensitive to pressure, although firm handling caused slight discomfort. It was not possible with moderate force to push the kidney up into place, and a persistent effort to accomplish this was not thought advisable lest some venous thrombus should be dislodged.

It was decided to lower the patient's shoulders and to raise her hips, so that the downward drag of the kidney should cease. This change of position worked favorably, and the loss of blood was stopped, besides, the strength of the patient was augmented to enable her to undergo the operation for fixation of the kidney that was finally decided upon.

Under ether the kidney could be plainly felt projecting from beneath the ribs and reaching down to the level of the umbilicus. It was much smaller than at the former examination, and it could be pushed quite easily into its proper position. An incision was made down along the outer edge of the quadratus lumborum muscle, exposing the kidney. The fat capsule was ample in size and scantily filled with fat. In it the kidney moved up and down freely. The surface of the organ was of a milky color, owing to a very considerable thickening of the capsule proper. No other abnormality could be discovered. The thickened capsule was split along the convexity and slightly separated from the kidney. Its edges were then sewn tightly to the transversalis fascia with continuous stitches of chromicized catgut. The upper ends of these stitches were fixed in the fascia on the lower edge of the twelfth rib. The muscular layers were brought together with interrupted catgut stitches, and the skin was tightly closed with silkworm-gut. The patient recovered entirely relieved.

CARCINOMA OF THE LIPS.

JANOWSKY *(Archiv fur klin. Chirurgie,* Bd. 65, Heft 2) operated 89 times on 71 patients for carcinoma of the lip between the years 1894 and 1899, and treated 107 other cases that were not operated upon. He thus summarizes the results of his observations:

1. Operations for carcinoma of the lips are not dangerous, and the conditions for healing are so favorable that the great majority of the wounds heal per primam within nine to fifteen days.

2. The lymph glands in the submental and the submaxillary regions must be removed in each case. The latter region should be examined with great care and the submental region should be opened in every case, for metastasis is most likely to occur at this point.

3. There should be no hesitation about performing a resection of the lower jaw if this operation is indicated, because a radical cure can be secured even in very extensive cases.

4. The lymph glands become involved within two to three months after the appearance of the cancer on the lip, but in a large proportion of the cases they do not exclude radical operative procedures. Recurrence after operation was noted as fre-

quently in the cases in which the glands were not palpable as in the remaining cases.

5. Satisfactory operative results were obtained in 49 per cent of the operative cases.

6. In the cases which had a recurrence, the new growth was observed in the great majority of the cases within the first six months, and in the remaining cases within the first year. Very rarely the tumor returned after the first or second year.

7. Recurrence was seen most frequently at the site of the original lesion and in the submental region.

8. The length of time the tumor has existed before operation influences the final result only in relation to the malignancy of the process. The comparatively benign, slow growing variety of carcinoma can be operated upon some years after the beginning of the disease with complete success.

9. Advanced age of the patient does not afford a contraindication to operation. The best results were obtained in patients between 60 and 70 years of age.

10. In cases of repeated recurrences, it is still possible to prolong the life of the patient by further operations.

11. Cancer of the lower lip was observed nineteen times more frequently than cancer of the upper lip. In men, cancer of the lip was ten times more frequent than in women. Carcinoma of the upper lip is five times more frequent in women than in men.

12. In these 178 cases it was not possible to establish any relation between the habits and occupations of the patients and a predisposition to the disease.

13. Carcinoma of the lip occurred most frequently between the ages of 60 and 70 years.

14. About 25 per cent of all the cases pursued a rapid, malignant course; about 15 per cent were comparatively benign; and the remaining 65 per cent pursued an intermediate course.

THE DIAGNOSIS OF TUBERCULAR PERITONITIS IN CHILDREN.

KISSEL *(Archiv fur klin. Chirurgie,* Bd. 65, Heft 2) presents the following conclusions after a study of 54 cases of tubercular peritonitis in children under thirteen years of age.

1. Tubercular peritonitis is more common in children than is generally supposed.

2. It can be laid down as a general rule that all cases of so-called spontaneous ascites are really due to tubercular peritonitis.

3. Not infrequently the exudate in the peritoneal cavity will disappear under general tonic treatment and the child will regain complete health.

4. In the majority of the cases the onset of the disease is imperceptible. The parents first notice that the child becomes pale and thin without apparent cause.

5. The presence of a coincident serous pleurisy is strong confirmatory evidence in the diagnosis of tubercular peritonitis.

6. Thickening of the parietal peritoneum is the most valuable sign in the diagnosis of tubercular peritonitis. This sign can be readily elicited before adhesions have formed by picking up a fold of the anterior abdominal wall and palpating the peritoneum between the thumb and fingers, provided the examiner is accustomed to the palpation of the normal peritoneum.

7. In exudative tubercular peritonitis the fluid obtained by tapping is very rich in albumin and has a high specific gravity.

8. In many patients who present no subjective symptoms and only moderate objective symptoms the whole peritoneum is found covered with a thick layer of tubercular masses.

9. Chronic ascites due to tubercular pericarditis affords the greatest difficulties in differential diagnosis, but this condition is very rarely seen.

10. Only in rare cases does tubercular peritonitis have a severe onset.

AMPUTATIONS AT THE HIP-JOINT.

ROSE *(Deutsche Zeitschrift für Chirurgie,* Bd. 62, Heft 5 u. 6) has performed exarticulation of the hip-joint on twenty-one patients. He believes that the high mortality of this operation, both in hospital and military practice, has been due to serious organic diseases from which the patients suffered. Whether the operation is primary, secondary, or intermediate is not a matter of much importance. Organic disease does not afford a contraindication to the operation if it is necessary for the preservation of life.

No special instruments are necessary in performing an amputation at the hip-joint by the author's method. Anterior and pos-

terior flaps are formed by incisions which begin at a point between the anterior superior spine and the great trochanter, run downward, and then inward and upward to end at a point between the symphysis pubis and the tuberosity of the ischium. The posterior flap is made the longer in order to cover the muscular stump. The main blood-vessels are ligated before being divided, and further hemorrhage is avoided by having an assistant grasp the muscles until they are cut through, and the bleeding points secured with hemostats.

Of the twenty-one cases operated upon by this method only four recovered. The remaining seventeen died shortly after operation from various lesions of the internal organs.

RESECTION OF THE CERVICAL SYMPATHETICS FOR THE RELIEF OF EXOPHTHALMIC GOITRE.

BALACESCU *(Archiv fur klin. Chirurgie,* Bd. 67, Heft 1) reports fourteen cases of the above affection in which Jonnesco performed a total bilateral resection of the cervical sympathetics and the superior thoracic ganglia. This operation is based upon the theory that exophthalmic goitre is caused by an irritation of the above nerves, and that excision of these nerves will bring about a symptomatic cure independently of whether the irritation is central from brain affections, or peripheral from either the mechanical pressure of an enlarged thyroid or the chemical action of the glandular secretion.

The operation is performed by making an incision extending from the posterior border of the mastoid process downward for a distance of an inch and a half along the posterior border of the sternomastoid in order to find the superior cervical ganglion, at which point the sympathetic nerve is easily recognizable. The sternomastoid is buttonholed in the direction of its fibres, and the fascia covering its posterior surface is divided. By introducing the right forefinger between the above layer of fascia and that covering the deeper muscles, a sort of tunnel is formed beneath the sternomastoid, which extends upward to the base of the cranium and downward as far as the finger will reach. By retracting the edges of the wound the sympathetic nerve is found along the inner side of the anterior tubercles of the tranverse processes of the vertebræ, between the deep cervical muscles and the fascia covering them. The superior cervical ganglion is readily exposed by dividing this layer of fascia. The lower end of the ganglion is seized with artery forceps, and is then dissected free as far as the base of the cranium. After division of its anastomotic branches, the upper part of the ganglion is seized with forceps and its remaining nervous attachments torn out by traction. The sympathetic nerve with its attached forceps is now brought out of the wound and a temporary tampon is introduced. A second incision is made, which begins just above the clavicle and extends upward along the posterior border of the sternomastoid, for a distance of an inch and a half. After division of the skin, subcutaneous tissues and the platysma, the posterior portion of the sternomastoid is separated from the clavicle, and the tunnel under this muscle is completed so the finger can pass from one to the other incision. The tunnel is then extended downward behind the clavicle. The edges of the lower wound are retracted, and the middle cervical ganglion is sought at its position within the curve of the inferior thyroid artery. Usually, however, this ganglion is absent, and it is then replaced by a sympathetic plexus of nerves surrounding this artery. Or the plexus can also be completely absent, when the sympathetic nerve passes directly behind the inferior thyroid. After finding the sympathetic nerve at this level, its identity is established by making gentle traction on it and finding that the traction affects the ganglion with its attached forceps in the upper wound. The nerve is isolated by dissection through the two wounds and is then drawn out through the lower wound. The nerve is next carefully separated from the inferior thyroid artery, when the middle cardiac nerve and the anterior branches of the ansa Vieusenii are divided at this level and the sympathetic is withdrawn from under the inferior thyroid. The dissection of the sympathetic nerve is carried on downward to the inferior cervical ganglion, which lies behind the clavicle on the head and neck of the first rib, between the scalenus anticus and the longus colli muscles. The nerve is grasped near the inferior ganglion and brought up to the level of

the wound in order to separate the ganglion from the vertebral vein which partially covers it. Gentle traction is made on the nerve until all the afferent and efferent branches are isolated as far as the vertebral artery. The inferior cervical ganglion is now seen, with numerous branches running out from it. The inferior cardiac and vertebral branches are divided with scissors. Further isolation of the inferior cervical ganglion is accomplished by means of the forefinger, which is worked downward along the inner and outer sides of this ganglion until the superior thoracic ganglion is reached and laid free. The nerve is then grasped near the latter ganglion and torn out by cautious traction. The operation is completed by closing each wound with three or four interrupted sutures.

In all of Jonnesco's fourteen cases an improvement in the symptoms was noted on the second day after operation, which steadily continued until complete recovery occurred.

Balacescu presents the following conclusions after discussing the various operative procedures that have been performed for the relief of exophthalmic goitre:

1. Of all the operations devised for the treatment of exophthalmic goitre, the total and bilateral resection of the cervical sympathetics (Jonnesco's operation) is the most successful. At the same time it is the only rational treatment if we admit that the disease is caused by functional changes. It is the only operation which relieves both the major and accessory symptoms and produces a permanent cure.

2. Stretching, as well as simple section of the cervical sympathetics, does not fulfil the necessary indications for a cure, because these procedures do not destroy the pathways for the nervous impulses which pass over the sympathetic nerves to the functionally altered organs.

3. Extensive but incomplete resection of the cervical sympathetics can have its indication only in the cases in which the tachycardia is not a prominent symptom. For the relief of the latter symptom it is essential to remove the inferior cervical and the superior thoracic ganglion. It does not appear rational to be content with the incomplete operation, when the certainty of the results and the freedom from difficulties and dangers of the complete operation are considered.

4. While direct operations upon the thyroid gland are not dangerous in simple goitre, they are frequently followed by serious consequences in exophthalmic goitre.

HEMOSTASIS IN DISARTICULATION OF THE HIP-JOINT.

It is maintained by SHELDON *(American Medicine,* April 19, 1902) that the method he follows for disarticulating the hip-joint is the most rapid he has tried, that it allows cutting of flaps of any size or shape, that it calls for no constrictor, obstructing the field of operation, and that it can be done with the simplest instruments.

He reports the fourth of his cases to illustrate the method of operating. A rubber bandage was applied as high as the knee-joint, the operation being on a man of 28 who had sarcoma of the thigh. A vertical incision was next made over the trochanter major, beginning about three inches above its upper border, and extending a distance of seven or eight inches. The knife was thrust down to the bones. The knife, introduced next into the upper and posterior parts of the joint capsule, cut the capsule for 1½ inches. By forcible adduction the femur was dislocated. No preliminary freeing of the bone was found necessary. With a sharp chisel the upper end of the femur was freed from its muscular and ligamentous attachments, work being done as close to the bone as possible. Two fingers were then introduced into the wound, behind the femur, the femoral vessels located, and an artery forceps applied to them. The flaps, anterior and posterior, were formed rapidly. The arteries and veins were ligated with catgut. The nerves were cut high. Then the wound was closed with one large silk-mattress suture and as many silkworm-gut sutures as were required to approximate the cut surfaces.

Hemorrhage was very light, and the sciatic and obturator arteries did not require ligatures. Twenty-one days from the operation the patient was recovering rapidly.

In three cases the branches of the obturator and sciatic arteries did not require ligatures. Clamping for a short time or compression was sufficient to control the bleeding.

GALL-BLADDER USED TO RESTORE A PROLAPSED LIVER.

Prolapsed abdominal viscera are frequently observed, but their rectification has been solved in only a few instances. JONAS *(Journal of the American Medical Association,* March 29, 1902), in the case of a farmer, aged 65, suffering from a right interstitial femoral hernia, performed two operations, the first, because of the enfeebled condition of the patient, for the immediate relief of the incarcerated hernia, and the second for the cure of the biliary obstruction.

In the latter operation, on opening the abdomen by a vertical incision, the liver was seen to extend about three inches below the costal margin. The distended gall-bladder appeared below the hepatic border, and the liver was easily pushed upward to its normal position. The right index finger was introduced into the foramen of Winslow. A calculus found lodged in the common bile duct was raised forward, easily laid bare, and, after the introduction of four sutures in the duct wall, was removed through a longitudinal incision. The wound being closed by tying the previously applied sutures, the gall-bladder was then fastened in the uppermost part of the wound, snugly against the costal arch. After placing a rubber drain—one end reaching to the common duct over the line of sutures, the other end projecting from the lower end of the abdominal wound—the peritoneum was closed, allowing the gall-bladder fundus to project at its point of attachment. The gall-bladder was opened and four calculi were removed. A rubber drain was placed in the bladder, and the abdominal parietes were approximated between the two drains.

The healing process was uneventful, the lower drain being removed in five days, the upper one in ten days. The liver had retained its normal location, as was indicated by the normally located area of dulness. The stomach was apparently in its normal location, as was shown by air inflation through a tube. The patient was discharged, wearing a snugly fitting abdominal band. The liver now remains in its normal position.

At the conclusion of his paper on the subject, Jonas remarks:

The cause of hepatoptosis consists in a modification of one or more of its normal supports, or in an increase in the size and weight of the liver.

It is impossible for the liver to descend without producing a descent of the hollow abdominal viscera.

Utilizing the gall-bladder as a suspensory ligament, to maintain and hold in its normal position a prolapsed liver, together with certain other abdominal organs, appears to be practicable.

SURGICAL TREATMENT OF ASCITES.

The present state of the surgical treatment of ascites in cirrhosis of the liver is summed up by HARRIS *(Journal of the American Medical Association,* May 3, 1902) as follows:

While the increased tension in the portal system is an important factor, it is not the only one concerned in the production of ascites.

Talma's operation in itself is quite simple and practically devoid of danger, as the deaths have been due to complications or to the advanced stage of the complaint.

As the chronic inflammatory changes in the peritoneum are materially instrumental in the development of the ascites, the operation should be performed early in the pre-ascite stage if possible. Tension in the portal system may delay the appearance of these changes and secondarily the ascites, as long as possible.

In a few cases the ascites has aparently been favorably influenced by the operation, but such has not been the rule, nor does it appear that the operation has in any way modified the usual course of the disease.

VESICOVAGINAL AND RECTOVAGINAL FISTULAE HIGH UP IN THE VAGINA.

For vesicovaginal fistulas high up in the vagina, which are often difficult to close, KELLY *(Johns Hopkins Hospital Bulletin,* April, 1902) urges opening the peritoneal cavity widely from side to side, so as to free the bladder from its fixation at the vaginal vault and render it thoroughly mobile. It becomes possible thus to displace the entire affected area downward to any extent required, and as that part of the bladder which lies above the vaginal vault contiguous to the fistula is thus exposed, the latter can be included in the area of denudation.

As in all his vesical operations, Kelly

before beginning the operation places the patient in the knee-chest position, when the bladder becomes spontaneously distended with the air that rushes in through the fistulous orifice. The patient's body is properly supported, and her neck is well protected from pressure by soft cushions. The vagina has been thoroughly cleansed. The vault is opened in the line of the transverse scar into the peritoneum, by making a small incision in the attenuated septum. As soon as this is done the air rushes in and the viscera drop towards the diaphragm. The little opening is now extended as widely as possible from side to side, destroying the vaginal vault and setting the bladder free. A large gauze pad with a stout thread attached is next thrust down into the peritoneum, and by pulling on this the bladder is crowded towards the vaginal outlet while the peritoneal cavity above is protected. The cavity of the bladder is wiped out from time to time to prevent the escape of any of its contents onto the peritoneum. The margins of the fistula are now split, separating the vagina from the bladder, or, if the operator prefers the older methods, the fistula is denuded on all sides.

To split the margins Kelly uses a short-bladed, thick knife, sharpened on both edges and set in the handle at an angle of about 45 degrees; this is better than a longer, thinner blade, which tends to perforate the flaps. An ordinary scalpel or a bistoury cannot be used. When the edges are split and the bladder wall is set free, the bladder is sewed up separately by means of a row of buried sutures of fine silk or of catgut, thus uniting the muscularis alone. By this means the vesical edges are turned up into the cavity of the bladder, forming a little buttress. The vaginal surface is then united with a row of fine silkworm-gut sutures. Kelly uses a grade of gut which is reckoned inferior in quality, because it is finer and more flexible. This row of sutures may be continued up onto the peritoneal surface of the bladder, in this way easily and securely covering in that upper part of the fistula which under previous methods of treatment was least likely to heal. There must be no dead space left between this and the buried row of sutures. The silkworm sutures are cut off at about four centimeters from the knot.

The fistula being now closed, the pack is withdrawn, and then in order to get rid of the air in the peritoneum, the cavity is filled through a tube with a normal saline solution which, as it rises to the level of the vagina, displaces the air. When the patient is turned over into the dorsal posture all the water escapes.

A little suturing at each angle and a drain of washed-out iodoform gauze (Sänger) in the middle, and one in the vagina, complete the operation and the dressing. It is best to keep a catheter in the urethra for from seven to nine days following the operation.

Kelly, by a plan which may sometimes prove valuable, cured a fistula by first making it larger and thus securing the coaptation of the more difficult and inaccessible part, and at a subsequent operation closed the newer portion which was easy of access. The patient had a vesico-vaginal fistula about 1.5 centimeters in diameter, situated at the vaginal vault in the midst of an area of unyielding scar tissue, following a vaginal hysterectomy for carcinoma. She had had eleven unsuccessful operations. Kelly attempted at the twelfth operation, the patient in the knee-chest position and with the perineum elevated by a speculum, to free the fistula and make it easier to handle by first incising the thin septum at the vault and opening the peritoneum for two or three centimeters from side to side, but he did not make the broader lateral incisions recommended above. The next step in the operation was to cut through the vesico-vaginal septum from the lower margin of the fistula down into the vesical trigonum. This enabled Kelly to separate the bladder from the vagina with ease all around the edges of the fistula, which were not pared at all, and no tissue whatever was removed. The vesical walls were then turned in towards the bladder cavity and the muscularis vesicæ united by fine interrupted catgut sutures. The vaginal walls were then closed with similar catgut sutures over the line of union of the bladder. The lower part of the wound nearer the urethra was approximated also with catgut. Union failed in this lower tract where the new wound was made and succeeded in the upper more rigid and more inaccessible portion.

A second operation was then done by simply paring and uniting the edges of the fistula with interrupted silkworm-gut

sutures, including all the tissues up to the vesical mucosa.

This operation succeeded perfectly and the patient was completely restored.

The plan of separating the bladder on all sides from its peritoneal attachments in order to mobilize it, and make it more accessible to surgical treatment, can also be applied with even greater satisfaction to rectovaginal fistulæ situated high up in the vagina. In this case the absence of the uterus is not needed to facilitate the exposure of the fistula, as it is only necessary to open the peritoneal cul-de-sac behind the cervix widely from side to side and down at the sides of the rectum to gain the great advantage of increased mobility of the bowel, including an area above the fistula which can also be turned in by sutures so as to cover in the upper angle of the opening.

It is preferable in these cases, after completely detaching the vagina from the bowel, to infold and sew up the bowel separately with fine silk sutures in one or two layers, and not to attempt to close the vaginal wound over the bowel, but to put a little iodoform gauze drain between the edges of the vaginal opening and allow the wound to close by granulation. An opening should be left in the peritoneum wide enough to admit a small iodoform gauze drain.

REMOVING INTERNAL HEMORRHOIDS UNDER LOCAL ANESTHESIA.

Non-malignant anal growths may be removed painlessly, without resort to general anesthesia, with a clamp, described by MARTIN (*Journal of the American Medical Association*, April 26, 1902), consisting of a hollow cone three and one-quarter inches long and three-quarters of an inch in diameter at its distal extremity, and one and three-quarter inches in diameter at its proximal end. One quadrant of the cone is fenestrated. This is occupied by a movable blade with a serrated edge, which makes contact with the cone's serrated edge. The movable blade is sheathed in the cone when the jaws of the clamp are separated. Hence after the instrument is introduced it may be made to receive the pile without irregularly expanding the anus.

The patient is prepared by daily gradual dilatation of the anus with Kelly's conic dilator until the anus may be made to open painlessly to the degree necessary for the introduction of the clamp. The situation of each hemorrhoid should be noted as occupying certain given zones and quadrants of the anus.

The summit of each tumor should be infiltrated with a one-tenth of one per cent solution of eucain; a very fine needle should be employed.

The now artificially edematous and anesthetized portions of the several tumors should be grasped with curved hemostats and the anoscope withdrawn. They should be detached, withdrawn from the anoscope, and reattached, one by one. Thus, in order, each of the prolapsed tumors is to be released and again seized and the anoscope removed from the field of operation.

The attached hemostats should be surrendered to an assistant, who would radiate them from the anus and well out of the way of the operator.

The operator should take the well-lubricated clamp, properly adjusted, and introduce it into the anus with its blade pressing against the tumor which is to be removed first. When the instrument is buried to its shoulder the fenestrum should be opened.

The hemostat, which is attached to the tumor within the now exposed field, should be used as a lever to drag the hemorrhoid into the clamp's chamber. The pressure incident to the introduction of the clamp often expresses the eucain from the tumor so that it is necessary to reanesthetize it before subjecting it to such manipulation as is necessary to carry it completely into the clamp. As the pressure of the clamp from this time on obstructs the local circulation, the infiltration should be thorough. Not only must the tumor itself be anesthetized, but its base also, and the tissues underlying this. If the patient should feel pain at any time during these manipulations, it indicates that the infiltration is incomplete. The clamp should now be closed and locked, and the growth cut away by means of scissors.

If the character of the growth is such that the operator has reason to fear secondary hemorrhage, the wound should be lock-stitched with catgut. If it be of the connective tissue or fibrous variety the pedicle should be cauterized. The red-hot platinum should be applied for a second

only and repeatedly, thus the clamp will not accumulate sufficient heat to distress the patient, and the lymph will be coagulated and plug the vessels.

Tentatively, the clamp should be made to release the wound. If there be any bleeding it may be controlled at once by suture or cauterization.

The clamp should be withdrawn gently and reintroduced for the removal of other hemorrhoids, if necessary.

The clamp can be separated and rendered aseptic. As the tumor operated on is within a sterile metal chamber, the former may be antisepticised, and therefore the field of operation may be rendered surgically correct. Insufflation of iodoform or other antiseptic powder upon the wound fortifies it in a measure against subsequent infection.

This clamp demands that the wound shall be linear in form and parallel with the axis of the anus; it dilates the anus to a degree greater than its normal excursion, hence there will be no subsequent contraction and stricture as a result of this operation. This method of clamp operation is inapplicable to inflamed or thrombotic piles.

If the eucain be prepared in normal salt solution its injection is not so likely to be followed by smarting and burning.

CARBOLIC ACID IN SURGERY.

In August, 1894, POWELL *(American Journal of Surgery and Gynecology,* April, 1902), found that he could control the action of carbolic acid under all circumstances, and since then he has extended its use to all cases of microbe wound infection. He is now prepared to proclaim its safety and unfailing reliability when brought properly in contact with the infected surfaces.

The carbolic acid found the most satisfactory has been made by Calvert of England and is known as Calvert's No. 1. With this acid there is no question as to the terminal result when properly applied.

In ivy poisoning make a five per cent solution of carbolic acid, and wet a gauze compress with it, place it over the surface inflamed for a period of ten minutes to half an hour, the time depending upon the age of the patient and the sensitiveness of the skin, then substitute gauze wet with a two-per-cent solution, and continue its use until all traces of the disease have disappeared. Many patients will stand a solution stronger than this. In all cases when the ivy poisoning has appeared upon surfaces of the body other than the face, use a drachm to the ounce. When the surface is whitened, which will be in from five to fifteen minutes, then further action of the acid can be checked by the use of alcohol.

Specific urethritis will yield to one treatment in the majority of cases. In the female use a drachm to the ounce, having thoroughly cleaned the vagina, following the use of the acid with alcohol after the surface is well whitened and puckered, and following up its treatment by syringing with a warm two-per-cent carbolic solution.

In the male a deep urethral injection is made of a five-per-cent solution, and followed in a leisurely way with two or three syringefuls of warm or hot water. In cases where the infection has been long standing I have found it necessary to repeat the injection a few times.

Erysipelas is also amenable to treatment with this drug, and here we use 95-per-cent carbolic acid. Follow directions closely, for damage may result from a failure to observe this.

Powell manages it this way: Placing the patient flat on the back, and with the head placed so as to present as nearly as possible a level surface of the face, he applies a 95-per-cent solution of carbolic acid with a well-rolled mop of absorbent cotton. He watches the surface carefully, and as soon as it turns white swabs it off with alcohol. Materials should be at hand and readily available, and one should depend upon his judgment as to when the alcohol should be applied, and not upon the complaints of the patient. He paints the surface about the eye with pure acid, holding gauze pledgets in between the closed lids to prevent the acid entering the eye. One must be very careful not to allow the alcohol to be brought into contact with any part of the surface before the acid is applied, as it will prevent the acid from acting on that surface. In this way not only the entire face, but all of the surface involved by the disease, can be treated. A larger mop of cotton must be used so as to go over the surface rapidly and completely. Then in some cases it will act so quickly as to compel one to do it in sections, not only cover-

ing the diseased surface, but going over the line one inch or more; especially does this apply to the treatment of erysipelas in locations other than the face.

Lymphangitis, arising from an infected wound of the hand or foot and extending up into the limb, marked by a well-defined area of redness, swelling and pain, accompanied by high temperature, delirium, and more or less enlargement of the glands along the infection and in the axilla and Scarpa's angle, yields at once to this drug when applied in its full strength at the site of the infection and along the line of the lymphatics; neutralized, after its action, by the application of alcohol—limited, however, as Powell does not put the alcohol into the infected wound after having used 95-per-cent carbolic acid in these instances, but does use it on the outside surfaces just as in cases of erysipelas. In these cases he envelopes the limb in gauze of several thicknesses and keeps it wet with a two-per-cent solution of carbolic acid.

Every surgeon who has experienced the annoyance and suffered from the clinging smell which hangs to his hands for days after having opened abscesses will be pleased to know that the washing of the hands in a solution of one drachm to the ounce and rinsing them in alcohol will remove this odor and make his hands completely aseptic.

Abscesses, wherever located, can be treated speedily by the injection of or swabbing freely with pure carbolic acid. The size of the abscess or the amount of surface covered is not a factor. Only thorough drainage and complete removal of the pyogenic membrane need be considered.

There are certain rules which pertain to all conditions. They are thorough application of the drug and thorough drainage. Thorough drainage may be obtained without such extensive incisions as we have been taught were necessary. Ordinarily an opening large enough to evacuate the pus completely is sufficient, but where there is a thickened pyogenic membrane, and curettage is essential for a rapid recovery, then the drain opening should be made large enough for the operator to penetrate the entire cavity. For instance, in mammary abscess, an opening large enough to evacuate the abscess completely would not extend over half an inch, but where there is an abscess of long standing, where a well-developed pyogenic membrane is formed, a larger opening must be made.

Abscesses in or about the joints, with fistulous tracts leading away which must be thoroughly curetted, must of necessity demand a larger opening.

Abscesses in bone require special treatment. It is easy to convince the most skeptical that carbolic acid extends far beyond the area of application in its influence; and so Powell pours the bone cavity full of a 95-per-cent solution of carbolic acid and allows it to remain at least ten minutes.

Abscesses of the breast yield very readily to this treatment, and the solution of one drachm to the ounce is the proper one to use if the pocket has been emptied and irrigated. Powell believes it to be a mistake to put on any compress which will interfere with proper drainage. His custom is to hold the breast up in a sling, and in that way to secure good drainage.

Pelvic abscesses, abscesses of the liver, perityphlitic abscesses, all are treated in a similar manner.

Palmar abscesses, either those resulting from infections directly into the palm of the hand or from so-called felons, which are nothing but infections, are peculiarly adapted to treatment. It is best to make a small opening at the site of the original infection and swab out all the accessible cavity with a 5-per-cent carbolic acid, and where there is a sinus leading up into the palm of the hand or up underneath the annular ligament above the wrist, pass along the silver-nozzle syringe, probe-pointed, and inject into that sinus a drachm-to-the-ounce solution of carbolic acid. The limb is then enveloped in gauze and kept wet with a two-per-cent solution.

Ischiorectal abscesses require a special word. In Powell's practice he has found no occasion in recent years to cut through sphincters to obtain a cure. Make a small opening, half an inch usually, parallel with the outer fibers of the external sphincter muscle, and then use the curette if the abscess is of long standing; then swab it out with 95-per-cent solution of the acid carefully and thoroughly. One can also use a long-nozzle syringe, and follow out any sinus which may lead from the abscess cavity, and into that inject pure carbolic acid. If the abscess is of recent date a drachm to the ounce is sufficiently strong;

but if it is of long standing, and a pyogenic membrane is formed, it must be curetted and 95-per-cent acid thoroughly applied. Alcohol is used only where it is necessary to limit the action of the acid. It is best to do the work with the acid alone if possible, as it is not always safe to use a curette in cellular tissue. Wherever too much force is used a new abrasion is made, and that is a point for reinfection. This applies particularly to the treatment of ischiorectal abscesses and empyemas.

An infected uterus following childbirth can be treated as a large abscess cavity. Swab out the entire uterine surface with a solution of a drachm to the ounce of carbolic acid and pack the cavity well with a gauze bandage rinsed out of a 5-per-cent solution. If the temperature of the patient does not fall immediately after this treatment, there are points of infection which have not been reached.

In mastoid diseases the results are more than satisfactory. It is essential to first secure thorough drainage and then to be generous with the amount of pure carbolic acid poured in; and use gauze drainage.

Aspiration is very frequently satisfactory in empyema, and is followed by recovery if it is made at a time when the pleural cavity is full of a perfectly sterile serum; but if, after one aspiration and removal of sufficient quantity of fluid, the condition recurs, do not aspirate a second time, because one is much more liable to infect the pleural cavity by aspiration than by making a free opening. After opening the chest the best plan is to irrigate the pleural cavity with a strong solution of carbolic acid. Introduce a solution, or emulsion, of one drachm to the ounce. Then wash out the pleural cavity with a two-per-cent solution; after it is perfectly clean pour in a solution of a drachm to an ounce until the pus pocket is filled, then empty it out and irrigate with a two-per-cent solution; lastly put in drainage, but do not put it in far enough to interfere with the expansion of the lungs.

If the pocket has lasted a long time this treatment will not be effective. A pus pocket of long standing has a thick pyogenic membrane, and a solution of carbolic acid of one drachm to the ounce will not be of any effect. In such cases it is needful to make a larger opening and take out three, four, or five inches of one or more ribs. One should not make the mistake of making a square opening; take out a lengthwise piece of the rib and get a long opening, allowing curettage of the pleural cavity, which can be done without any harm. Then, while the carbolized water is running in, one should swab off not only the thoracic wall, but the wall of the lung as well. This breaks down the fibrin which has accumulated and become adherent and brings the solution in contact with the walls. Pour in the carbolic acid emulsion. Use a pitcher or a fountain syringe, and let it run in until the cavity is full. Let it remain in anywhere from three to ten minutes, according to the condition, age of the patient, etc. Turn the patient over and let it run out. If afraid of carbolic acid poisoning run in some alcohol afterwards. Drain out thoroughly and put in the drainage. Sometimes a second or even a third operation is necessary. If the lung has not been crowded up for a long time it will fill up the cavity very rapidly. If there is a partially solidified lung, and it goes back to only half of its original size, bring the chest wall to the lung.

IDEAL OPERATION FOR REMOVING STONES FROM THE COMMON BILE DUCT.

After an experience with all other methods, ROBSON *(Lancet,* April 12, 1902) has come to the conclusion that the ideal operation for the removal of stones from the common bile duct is choledochotomy. He has modified and simplified it so that the operation is done in from thirty to forty minutes, and has made it also much less wearing on the patient, all due to his experience in sixty cases. The mortality in these cases is about five per cent.

He places a firm sandbag under the back opposite the liver. This not only pushes the spine and the common duct forward, but causes the viscera to fall away as in the Trendelenburg position. He then makes a vertical incision over the middle of the right rectus, the fibres of which are separated by the finger; but when it is neccessary to open either the common duct or the deeper part of the cystic duct, instead of prolonging the incision downwards, as has been formerly

done, he carries it upwards in the interval between the ensiform cartilage and the right costal margin as high as possible, thus exposing the upper surface of the liver very freely. It will now be found that by lifting the lower border of the liver in bulk the whole of the gall-bladder and the cystic and common ducts are brought quite close to the surface. The assistant can take hold of the gall-bladder by fingers or forceps and by gentle traction can keep the parts well exposed, at the same time that, by means of his left hand with a flat sponge under it, he retracts the left side of the wound and the viscera. Instead of the gall-bladder and cystic duct making a considerable angle with the common duct, an almost straight passage is now found from the opening in the gall-bladder to the entrance of the bile duct into the duodenum. If adhesions have been thoroughly separated, the surgeon has immediately under his eye the whole length of the ducts with the head of the pancreas and the duodenum. The surgeon, whose hands are both free, can now with his left finger and thumb so manipulate the common duct as to render prominent any concretions, which can be cut down on directly, the edges of the opening in the duct being caught by pressure forceps. The assistant can now take hold of the forceps with his left hand, as that instrument with the sponge will form a sufficient retractor since the duct is so near the surface. When the duct is incised there is usually a free flow of bile, but a sponge in the kidney pouch and rapidly mopping up the bile as it flows by means of sterilized gauze pads avoids any soiling of the surrounding parts. If thought necessary, the bulk of the infected bile can be drawn off by the aspirator either from the gall-bladder or from the common duct above the obstruction before the incision into the duct is made. After removing all obvious concretions the fingers are passed behind the duodenum and along the course of the hepatic ducts to feel if other gall-stones are hidden there, and a gall-stone scoop is passed quite up into the primary division of the hepatic duct in the liver and quite down to the duodenal orifice of the common bile duct. If thought necessary to insure the opening into the duodenum being patent, a long probe is passed into the bowel. The incision into the bile duct is now closed by an ordinary curved round needle held in the fingers without any needle-holder, a continuous catgut suture being used for the margins of the duct proper and a continuous fine green catgut or spun celluloid thread being employed to close the peritoneal edges of the gut. In cases where the pancreas is indurated and swollen from chronic pancreatitis and is likely to exert pressure on the common duct for a time, Robson inserts a drainage-tube directly into the duct and closes the opening around it by a purse-string suture, the tube being fixed into the opening by a catgut stitch which will hold for about a week; but where this is not done he usually fixes a drainage tube into the fundus of the gall-bladder in the same way, as this drains away all infected bile and avoids pressure on the newly sutured opening in the duct.

So easy is it to remove impacted stones after this method of exposure that Robson now never spends a long time in manipulating stones impacted deeply in the cystic duct, but at once incises the duct, removes the concretions, and closes the opening without damaging the duct by much pressure and prolonged manipulation. Although there is seldom any fear of leakage or of infection, yet, owing to the separation of extensive adhesions, there is usually some tendency to pouring out of fluid in the first twenty-four hours. A gauze drain is therefore inserted through a split drainage tube, bringing it out either through a stab wound in the loin or forward by the side of the gall-bladder drain. The wound is closed in the usual way by continuous catgut sutures, first to the peritoneum and deep rectus sheath, next to the anterior rectus sheath, and lastly to the skin.

If the patients are jaundiced, Robson employs chloride of calcium, in apparently heroic doses, both before operation in thirty-grain doses by the mouth and afterwards in sixty-grain doses by the rectum, thrice daily for several days.

It is important to ligature all bleeding points and not to trust simply to forcipressure; and while in non-jaundiced patients adhesions may be simply separated, in these cases it is preferable to divide adhesions between ligatures wherever practicable. Where there is persistent oozing of blood from innumerable points, a tampon of sterilized gauze forms a useful method

of hemostasis, and this may be made more efficient by using at the same time a solution of suprarenal extract.

The best treatment of shock is preventive, and to that end it is desirable to lose as little blood as possible. The patient is enveloped in a roughly made suit of Gamgee tissue, and where he is very feeble or the operation is likely to be prolonged it is performed on a heated table. A large enema of normal saline solution, with or without stimulant, given from fifteen to twenty minutes before, and the administration of ten minims of solution of strychnia subcutaneously just before commencing anesthesia, are useful. Expedition in operating is an important factor in lessening shock, especially in abdominal surgery. After the operation a pint of saline fluid with one ounce of brandy is given by enema, and five minims of solution of strychnia is given subcutaneously every two hours for several hours if called for. Subcutaneous injections of saline fluid or intravenous infusion are only rarely required.

ADRENALIN CHLORIDE SOLUTION IN OPHTHALMIC PRACTICE.

Since the introduction of cocaine, says FERDINANDS *(British Medical Journal,* March 22, 1902), writing of adrenalin chloride, no drug of greater interest and use in eye work has appeared. It is essential, however, to remember that the preparation is only indirectly of use, contracting the muscular coats of vessels, and thus, by controlling congestion, promoting healing and absorption.

Adrenalin chloride is used (1:1000). Applied to the inflamed conjunctival sac it gives relief in a few moments. In severe acute conjunctival hyperemia several instillations may be required before complete blanching takes place. The hyperemia of acute inflammation does not appear to yield so readily as chronic hyperemia. The inflamed eye resumes its injected appearance within fifteen minutes after the instillation of the solution; but repeated instillations gradually overcome the hyperemia, provided, of course, the original cause of the irritation be removed. The solution is rapidly absorbed into the anterior chamber, and its action is seen on the congested iris, especially if the instillations be frequently repeated (once every fifteen minutes). This fact renders the drug particularly valuable in iritis. It relieves photophobia, and by its control over congestion assists atropine in dilating the pupil. The solution seems, too, to hasten absorption of serous exudation. It certainly assists the absorption of subcorneal deposits and thus improves vision; it also reduces tension, especially when above normal. Landolt's experience of the extract, however, is that it does not affect the tension of the globe.

In operations on the eye adrenalin chloride solution will also be found of use. In tenotomy and advancement of the rectus, the previous instillation of the solution helps to control the hemorrhage. It is necessary often to reinstil a drop or two during the operation. A minim or two previously injected beneath the conjunctiva has, however, a more lasting effect. In this way most operations on the superficial tissues are rendered practically bloodless. The solution is also of use in stricture of the lacrimal duct from swelling of the mucous membrane. Its use facilitates the passage of a probe. No secondary hemorrhage has been observed. In rhinology, Hopkins states that secondary hemorrhage occurs after the use of a solution of the extract (due evidently to delayed relaxation). Peters, too, has had similar experience with the extract, and found secondary hemorrhage occurring two hours after. Landolt also experienced troublesome hemorrhage. The experiences, however, of Mullen and Macleod Yearsley are contrary to these observers. In inflamed conditions of the eye, especially chronic, it will be noticed that there is a tendency for a reaction to set in after the influence of the drug passes off and the hyperemia is temporarily increased.

Suprarenal extract can produce marked toxic effects (Corona). Landolt likewise reminds us of the fact. How long and to what extent adrenalin chloride solution influences the deeper tissues of the eye it is not as yet possible to say definitely. The action of the drug varies with intensity and chronicity of the inflammation. It is not easy to arrive at precise conclusions from instillations into the eye. The size of the drop, its dilution owing to varied lacrimation, etc., all render precision in such observations almost impossible.

According to Grünbaum, suprarenal ex-

tract does not cause clotting. In eye operation coagulation takes place more readily when the solution of adrenalin is used; this, however, may be due to the hemorrhage being scanty. The solution may be combined with atropine or cocaine, but it is better to use it by itself. The action of cocaine on inflamed tissue (which is not satisfactory) is greatly promoted by the previous use of the solution. In cases where the nutrition of the tissues is at fault the solution of adrenalin chloride is contraindicated. In certain forms of corneal ulceration, for instance, the use of the solution appeared harmful. It will be thus seen that the drug must not be used indiscriminately.

Reviews.

CELLULAR TOXINS, OR THE CHEMICAL FACTORS IN THE CAUSATION OF DISEASE. By Victor C. Vaughn, M.D., LL.D., and Frederick G. Novy, M.D., Sc.D. Fourth Edition, Revised and Enlarged.
Philadelphia and New York: Lea Brothers & Co., 1902.

The earlier editions of this book appeared under another title, and the object of the volume at the present time is to put us in possession of all information which is valuable concerning the experimental and practical work which has been done in determining the question of cellular toxins. The contents of the book consist first in a discussion of the etiology of bacterial diseases, and how bacteria cause disease. It then proceeds to a classification and definition of the chemical products of bacteria, to a study of bacteria and their cultures, and of the bacterial poisons of the various infectious diseases. From this the text passes on to a discussion of the germicidal properties of blood serum, the precipitins, the lysins, and the agglutinins, with chapters upon immunity, food poisons, and the examination of poisonous food. The closing chapters deal with the importance of bacterial products to the toxicologist, and their resemblance to various poisons commonly derived from the vegetable kingdom, with remarks upon the chemistry of the ptomaines and leucomaines. The last chapter of the book deals with autogenous diseases.

As we pointed out in the beginning of this review, the object of the book is to present in a comparatively brief way the results of an enormous amount of research by foreign and American investigators, and this object is most admirably carried out by the authors, who have probably the best reputation on this side of the Atlantic of any investigators in this field.

A SYSTEM OF PHYSIOLOGIC THERAPEUTICS. By S. Solis Cohen, A.M., M.D. Volume IX.
Philadelphia: P. Blakiston's Son & Company, 1902.

The present volume of this admirable system is composed of articles upon hydrotherapy, thermotherapy, and phototherapy, written by Dr. Wilhelm Winternitz, assisted by Dr. Alois Strasser and Dr. Buxbaum, with closing chapters upon Balneology and Crounotherapy by E. Heinrich Kisch. Additions have been made to the text of these authors by notes on American Springs written by Dr. Hinsdale, of Philadelphia, and by others upon phototherapy and thermotherapy by Dr. Kellogg, of Battle Creek, Mich., while notes upon saline irrigation and infusions have been contributed by Dr. Harvey Cushing, of Baltimore. The editor himself has also added an appendix with the object of bringing some of the text up to the latest date possible. We think that this volume is perhaps the most valuable of any of those which appeared in the series, chiefly because the subjects discussed possess great therapeutic advantage, and many of the measures advocated can be employed by the general practitioner without the employment of cumbrous and expensive apparatus. Some of the information given has already been published in other American text-books, but its importance justifies the repetition and careful description that it finds in this volume, which closes with a copious index. Many of the illustrations which are employed are also admirable in that they clearly illustrate the author's meaning. We do not know whether this System is sold by the single volume, but if so we would strongly urge those who do not feel that they can go to the expense of purchasing the whole set to obtain this one, as it will give them a clear insight into the use of many remedial agents other than drugs, which are of first-class value.

HAMOGLOBIN-SCALA. By T. W. Tallquist.
Helsingfors. 1902.

This Hæmoglobin Scale consists of a small book, at the back of which are ten

shades of red corresponding to the color of the blood when soaked up by filter-paper. The rest of it consists of perforated slips of filter-paper. The object of the scale is to make a qualitative test of hemoglobin. This is done by pricking the finger-tip or the lobe of the ear, wetting the filter-paper with the blood, and then comparing it with the scale of colors.

This little book is sold for fifty cents by Edward Pennock, 3609 Woodland Avenue, Philadelphia, and is so arranged that it places in the physician's hands a very ready but somewhat crude method of testing hemoglobin.

MINOR SURGERY AND BANDAGING. By Henry R. Wharton, M.D. Fifth Edition. Enlarged and Thoroughly Revised, with 509 Illustrations.
Philadelphia and New York: Lea Brothers & Co., 1902.

This work is much more comprehensive than its title would indicate. Not only does it embody a very complete description of the roller and handkerchief bandage, the use and application of fixed dressings, and minor surgery as it is ordinarily understood, but the work also includes sections upon skiagraphy, anesthetics, trusses, bougies, catheters, intestinal sutures and anastomoses, fracture dressings, dislocations, and many of the major operations. It may, indeed, be regarded as a short treatise on the art of surgery. The teaching throughout is characterized by a directness and conservatism based upon a wide experience, which greatly adds to the value of such works. The value of the book to the student and general practitioner is proven by the many editions already called for.

NEUROSES OF THE GENITO-URINARY SYSTEM IN THE MALE, WITH STERILITY AND IMPOTENCE. By Dr. R. Ultzmann. Second Edition, Revised, with Notes and a Supplementary Article on Nervous Impotence, by the Translator, Gardner W. Allen, M.D.
Philadelphia: F. A. Davis Co., 1902.

This work seems to be a reprint rather than a new edition of this well-known work, except that an excellent chapter upon nervous impotence has been added by Allen. After a preliminary discussion of the alterations in the urine incident to neuroses, the author classifies these affections into sensory, motor, and secretion departures from the normal. Carbolic acid solutions for the prostatic urethra, 3 ounces at a time, ¼ to ½ per cent solution, repeated daily or every other day, are regarded as of great value. For the treatment of enuresis in children Ultzmann strongly commends electricity. The Faradic current is employed. One pole is of the size and shape of a lead pencil; this is introduced into the rectum. The other is in the form of a sponge, and is placed on the raphe of the perineum in boys, and on the gluteal crease of girls. In the beginning the current is very weak, but it is increased in strength to the limit of endurance. The sittings are continued daily, or every other day, and last from five to ten minutes. Four or five weeks are required for a cure.

The local treatment of pollutions is considered by Ultzmann the best. In many cases sounding is sufficient. This treatment is to be repeated once a day, or at least every other day. The sounds are to remain in from five to thirty minutes. The psychrophor is also considered most serviceable. Astringent suppositories and solutions of the same nature are recommended. At times the silver nitrate stick is serviceable.

The work of the translator and editor has been well done.

Correspondence.

LONDON LETTER.

By RAYMOND CRAWFURD, M.A., M.D., F.R.C.P.

Since my last letter the illness of the King has given the *coup de grace* to the coronation festivities, which the smallpox epidemic had failed to achieve. As usual, the lay press has been more prolific in its details, and more flamboyant in its descriptions, than the medical press. Our anatomy has received rude handling at the hands of the vivid penny-a-liner, and the vermiform appendix has been assigned to almost every region of the human body. The truth is that there was nothing unusual in the King's malady either prior to operation or during his progress to recovery. The rumors of associated malignant disease have been categorically denied by those who have been in a position to form any opinion on the subject. The picturesque imagination of our neighbors across the channel has given birth to the conceit of a gigantic hoax on the public.

One such effusion is so delightfully exuberant that I venture to give it you in full for your quiet enjoyment: "Nous nous en tenons donc strictement aux bulletins officiels, pour dire que la gravité de la maladie du Roi, et de l'opération—si toutefois il y a eu opération—a dû être grandement exagérée, pour des raisons d'état. Dans quel but? nous demandera-t-on peut être. Tout simplement pour soustraire Sa Majesté au danger, nullement illusoire, d'être assassinée par des anarchistes pendant la procession du Palais de Buckingham à l'Abbaye de Westminster."

The illness has also given rise to an animated controversy in the medical journals as to the periods at which the disease became familiar to the profession. The surgeons claim it as their child wholly and exclusively, and therefore of latter-day origin; but a perusal of old text-books seems to show that for at least half a century it has been a well-established and recognized morbid entity, at any rate among physicians, but one, alas! painfully neglected by them.

Several of the large metropolitan hospitals looked to have reaped a golden harvest from the selling of seats to view the procession as it passed, but in spite of the generosity of the seat-holders, who in many instances have handed over the whole of their payment to the hospitals, the amount expected has been sadly shrunk.

As I write, the King is returning to London seemingly in the best of health, and if a temporary respite from this second deluge be vouchsafed, there are a very large number of visitors in London awaiting the festivities.

The epidemic of smallpox has steadily diminished, as was forecast, with the progress of the summer, and the weekly admissions are now reckoned by tens instead of the hundreds of a few weeks since. The outbreak has brought to birth an influential society, the Imperial Vaccination League. Among its objects is the consideration of the following questions:

1. Whether re-vaccination at school age should be made obligatory.

2. Whether the administration of the vaccination law should be transferred from the Poor Law authorities to the hands of the sanitary authorities.

3. As to the need for the establishment of thoroughly well-equipped laboratories for the preparation of a supply of glycerinated calf lymph adequate to meet all ordinary demands; and for the systematic inspection of all establishments where lymph is prepared in this country.

4. As to securing a legal definition of what constitutes "efficient" vaccination, and as to requiring all certificates of vaccination to state if the vaccination has been "efficient" or not.

The league purposes also to preach and publish energetically the gospel of vaccination.

The epidemic has given an opportunity for the further trial of salol in the treatment of smallpox. Drs. Biernacki and Muir have used it in a thousand cases, and consider that on the whole it has a slight beneficial effect. It appears to lessen irritation and mitigate the secondary fever. They commonly gave to adult patients, if the disease was of severe type, fifteen grains every two hours in the form of crushed tablets. These large doses were uniformly well tolerated.

Dr. Jamieson, of Edinburgh, sends an interesting account of his experiments in the employment of adrenalin as an adjunct to the light treatment of lupus. It occurred to him to utilize the powerful vaso-constrictor action of adrenalin to produce the local anemia necessary for the penetration of the ultra-violet rays, and for which Finsen and others had employed various methods of mechanical pressure. The action of adrenalin on the skin is naturally far less marked than on mucous membranes, and is not sufficiently strong to replace mechanical pressure. It has the advantage, however, of maintaining during its period of influence a constant action, while all forms of mechanical pressure applied to the surface of the body exercise a varying and to some extent intermittent force; adrenalin to a large extent counteracts this defect. Jamieson considers that in this way the reaction is more quickly obtained, the tendency to blister is enhanced, there is more rapid flattening down, and the obliteration of the lupus is accelerated. Further experiments were made to enhance the action of adrenalin by thinning out the epidermis so that the skin might assume more or less the characters of a mucous membrane; this was effected by the prelimin-

ary application for several days of pieces of salicylic and creosote plaster muslin. The procedure, however, was subsequently omitted, as it was painful and did not appear to reinforce the action of the adrenalin solution.

Dr. Otto Grünbaum, following up the suggestions of Dr. Bullock's paper on the immunity conveyed from one animal to another by means of ingested milk, is engaged in attempting to produce a cytolitic milk for cancer. In outline, he proposes to disintegrate cancer of the breast, and to inject the expressed cell juice into the vein of a cow. Patients suffering from inoperable cancer of the breast are then to be supplied with the milk of this cow. The result of the investigation will be awaited with interest.

It has long been known that pineapple, in virtue of its active principle, bromelin, has considerable power as a proteid digestive. It is, however, an irony that this beneficial element should be linked to a texture that defies any but the most vigorous stomach. Wyatt Wingrave claims a much wider field of application for the expressed juice. He finds that it has a powerfully solvent action upon plastic exudation, such as diphtheria membrane. This can be demonstrated in vitro, and though owing to the shortness of contact its solvent action on membrane on the throat is necessarily slight, he finds that it exerts a decidedly softening effect on the stringy exudation, so as to admit of its easy detachment. He has also used with success a thin slice of pineapple, applied for eight hours, as a means of softening the horny epidermis of corns, ready for removal. Within his own special province he has employed the juice usefully for softening the horny papillæ in keratosis of the tonsil.

The Manchester meeting of the British Medical Association was well attended, and some of the papers and exhibits were of considerable interest. Among the latter we noted specially the clinical polygraph of Mackenzie of Burnley, which was demonstrated by the inventor. It is an exceedingly ingenious adjunct of the sphygmograph, by which he had made elaborate investigations of circulatory movements other than the pulse of the left ventricular contraction. These movements are communicated to a metal cap placed over the area of pulsation and connected by a hollow rubber tubing to a tambour, which in turn regulates the movements of a recording lever. The instrument can be obtained from Krohne & Sesemann of London, and will undoubtedly find wide acceptance in clinical work in hospitals.

Another useful apparatus, shown by Dr. Walker Hall, was the purinometer, for the clinical estimation of urinary purins. The previous methods for the quantitative estimation of urinary purins are too tedious for clinical use. This method is based upon Camerer's method for the estimation of the total purin bodies in the urine. The urine is first freed from albumin. The phosphates are then precipitated by solution No. 1, which consists of

> Ludwig's magnesium mixture, 100 cubic centimeters;
> Ammonia (20%), 100 cubic centimeters;
> Talc, 10 grammes.

After precipitation the phosphates are separated by turning a tap in the apparatus. The purin bodies are then precipitated by No. 2 solution, which consists of

> Silver nitrate, 1 gramme;
> Ammonia (strong), 100 cubic centimeters;
> Talc, 5 grammes;
> Distilled water, 100 cubic centimeters.

In an hour an approximate idea of the result can be obtained, and twenty-four hours later the precipitate can be read off on the graduated glass. Each cubic centimeter of the precipitate represents 0.0010 nitrogen.

Another ingenious instrument was shown by Dr. Herschell, viz., a tube and pump for inflating the stomach and for simultaneous application of the atomized vapor of cocaine and menthol solutions to the mucous membrane of the stomach.

I will defer any allusion to the more important papers and discussions at the meeting to my next letter.

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

It is a well known fact that arsenic is found of benefit in treating certain forms of syphilis, and the physicians at La Bourboule, the waters of which contain a small amount of arsenic, have remarked this. Experiments have been carried out recently in Dr. Brocq's service at the

Broca Hospital, and cacodylic acid was used. Cacodylate of mercury is an acid salt, which precipitates albuminoids, and moreover is toxic; so a mixture was made of cacodylate of mercury, soda, and iodide of sodium. The result is a solution containing per cubic centimeter 0.004 of biiodide of mercury, 0.004 of iodide of sodium, and 0.03 of cacodylate of soda. This drug has only been used hypodermically, as it was found to have an injurious effect on the stomach. It was tried on sixty patients of both sexes, suffering from various forms of syphilis, and especially on those where other treatments had failed. The results were as follows: In ten cases there was no appreciable result, viz., three cases of syphilitic acne, one malignant form, one serpiginous syphilis, two hybrid cases, and three cases of parasyphilis. Out of fifteen cases of tertiary syphilis, there were fourteen rapid cures without having to employ iodide of potassium. Ordinary forms of syphilis, which had not answered to the usual forms of treatment, were speedily cured, and what is most noticeable is that in syphilis complicated by neurasthenia the effect was startling; the patient recovering his strength very rapidly. It has, however, been noticed that patients who are nervously excitable react very violently to this drug, which causes in such cases agitation and insomnia. The following conclusions can be drawn from the experiments carried out: Arsenic should be given to patients who are depressed and neurasthenic, when there is a skin affection as well as syphilis. A mixture of biniodide of mercury, iodide of sodium, and cacodylate of soda is easily absorbed and causes less pain than the other mercurial preparations.

The treatment of phlebitis by massage and passive movements has been strongly advocated during the last two or three years by Dr. Dagron and Dr. Vaquez, professor at the Paris Faculty. The most serious complication of phlebitis is the possibility of an embolus being detached, and this is the reason why complete rest is insisted upon for several weeks. But by so doing the circulation is affected, and degeneracy of the muscles may set in. Such is not the case when massage is employed, and so far the results obtained have been excellent, when certain precautions were carried out.

The principal point is to know when there is no longer any danger from an embolus, and for this a careful study of what takes place after inflammation has set in is necessary. Cornil, the celebrated pathologist, and Marie have studied this, and according to their description the clot is completely fixed on the sixth day. This is not sufficient, however, as often another clot may form, followed by still others. The best symptom of this is the temperature, which goes up whenever there is formation of a new clot. The rule is therefore to wait twelve days after the fever has gone down completely. During this period the leg should be placed in a grooved wire splint. Mobilization of the foot rather than massage should be employed at first, and should be done very gently and without going too far. After four days the patient can carry out these movements himself, and by that time slight massage of the foot, leg, and external part of the thigh should be done. It is only at the beginning of the second week that movements of the knee and massage should be tried. The veins should carefully be avoided. After fifteen days movements of the thigh should be carried out, the patient may sit up, and get up on the twentieth day. The use of crutches is to be condemned, as well as the use of elastic stockings.

Professor Dieulafoy has recently published in the *Presse Médicale* an article with the following title: "To wait until a case of appendicitis has been reduced is to expose the patient to death." Dr. Dieulafoy takes the stand that all cases of appendicitis should be operated on immediately, and he cites a case he has recently seen at the Hotel Dieu in which death took place though the operation was performed on the fourth day. The autopsy showed that the appendix was gangrenous. In connection with this Dieulafoy remarked that he had never lost a case of appendicitis which was operated on the first or second day, and the same held true of almost all cases operated on the third day. When the operation takes place later, it may fail.

Dr. Siredey, physician of the Paris hospitals, has been trying injections of picric acid in cases of gonococcic endometritis. He employed the syringe of Braun, containing about four cubic centimeters, and injected a saturated solution of picric

acid. These injections are done twice every week, only two cubic centimeters being injected. He recommends also making an injection of a weak solution of permanganate of potash every day. The results so far have been quite encouraging.

According to Sabatier a good method of removing the stains caused on one's hands by the use of picric acid is to wash them with a ten-per-cent solution of carbonate or benzoate of lithium.

It is a fact worthy of attention that for the first time a French medical paper, the *Presse Médicale,* has published an account of the meeting of the American Medical Association. It shows that it is beginning to be understood that the work which is done in America should be examined into most carefully and be studied by the French medical men.

At a meeting held by the Medical Society of the Hospitals on the seventeenth of July Dr. Marfan, one of the best known specialists in children's diseases in Paris, spoke on the epidemic of diphtheria which had been observed during the last two years, and which was characterized by the extreme frequency of malignant forms of this disease. The principal symptoms were extensive pseudo-membranes of a grayish or brownish hue, coryza with hemorrhage, considerable adenopathia, the temperature, however, remaining almost normal. The pulse was also weak, there was great nervous depression, and almost always albuminuria. In such cases the serum produced an effect much more slowly, and death took place frequently. It is usual for the serum to produce its effect after the fourth or fifth day, but even then serious symptoms are still noticed, such as livid pallor, weak pulse, paralysis of the soft palate, increase in the extent of hepatic dulness, and of transverse dulness of the heart. Dr. Marfan insists upon these latter symptoms, which evolve slowly, and are of great importance. Bacteriological examinations have demonstrated the existence of a special diplococcus in the pseudo-membrane and in the blood. The latter is to be distinguished from different varieties of diplostreptococci seen in scarlatina, and is characterized by its mobility, its having no special action on milk, and its affinity for red corpuscles. Dr. Martin insists on the importance of making an injection as soon as possible.

According to Dr. Lemoine, of Lille, the best drug to be used in myocarditis is strophanthus, and he recommends giving two pills containing each half a milligramme of extract of strophanthus when there are signs of cardiac deficiency. In serious cases, when a result must be obtained quickly, injections of ether or of camphorated ether should be given:

Camphor, 5 grains;
Ether,
Alcohol, āā 1 drachm.

Fifteen to 45 drops in twenty-four hours.

Sparteine may also be used:

Sulphate of sparteine, 5 grains;
Water, 2½ drachms.

Fifteen to 45 drops in twenty-four hours.

Or rather injections of sulphate of strychnine:

Sulphate of strychnine, ¼ grain.
Water, 2½ drachms.

Five to 15 drops once or twice in twenty-four hours.

Typhoid fever would hardly seem to be a disease to be treated surgically, yet in a recent number of the *Presse Médicale* Dr. Dauriac, a former house physician of the Paris hospitals, has described an operation he carried out in a severe case of typhoid fever complicated by hemorrhage. On the eighteenth day of the illness the temperature fell suddenly to below normal, and the pulse went up to 152. The next day the temperature went up again, and the pulse was about 156. Dr. Dauriac was asked by the father of the patient to perform the operation he had spoken of, and which consists in establishing an artificial anus on the small intestine. Dr. Dauriac chose a part of the intestine which was healthy in appearance, and through the aperture made he washed out the lower intestine with two liters of saline solution every day. The patient began to improve almost immediately, and six days after the temperature had gone down to normal. The artificial anus was closed later without any difficulty, on the thirty-sixth day.

Dr. Froussard, physician at Plombières, a well known watering place for intestinal troubles, has written an article recently on the physiological effects of enemata and their use. According to Dr. Froussard the use of hot injections causes violent contractions of the large intestine,

while cold enemata seem to have the contrary effect. The latter, however, by causing momentary anemia, would appear to act on the liver and its circulation, and are therefore indicated in cases of jaundice.

THE TREATMENT OF CATARRHAL JAUNDICE.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: The great indication in the treatment of any inflammation being physiological rest I have often marveled at the authoritative line of treatment of such a comparatively simple pathological condition as catarrhal jaundice. In the latest English Text-book of Medicine, edited by G. A. Gibson, on looking under "Catarrhal Jaundice" I see the exhibition of calomel advised in the treatment of the condition. Surely this is as bad practice as the passive movement of a recently fractured femur. Rest in bed does no good unless we have *pari passu* rest of the inflamed part.

Everybody knows how to treat duodenal catarrh by bismuth and opium, but, wonderful to relate, if the condition extend to the common duct and jaundice supervene, rational treatment is forsaken and the old-style, hit-or-miss plan of treatment is adopted by trying to force a passage for the imprisoned bile along the swollen and practically obliterated channel by increasing the *vis a tergo*. Is it not better to attack the cause than the effect? Is it not more scientific to attack the stronghold? Besides the rest and warmth afforded by keeping the patient in bed and the planning of a suitable diet there remains local and general treatment.

Local treatment consists in the exhibition of bismuth in large doses (bismuth subnitrate gr. xl-lx being the best) thrice daily, and the general treatment by the use of some drug which, while it liquefies the bile, does *not stimulate* the flow of bile (a most important point), so that a *passive* flow of bile is established from the overfilled reservoir so soon as the swelling of the mucous membrane of the canal begins to subside. Sodium bicarbonate gr. xv given frequently in a glass of hot water answers every indication, as besides favoring the secretion of thin and very fluid bile, it soothes the inflamed mucous membrane and dissolves the stringy and inspissated mucus. Salol gr. v, thrice daily for the decomposing intestinal contents, and high rectal enemata (warm) containing sodium sulphate and carbonate, answer the other indications.

Yours faithfully,
I. R. CLEMENS, M.R.C.S. (Eng.),
L.R.C.P., etc.

ST. LOUIS, MO.

COCAINE AS AN ANTIDOTE TO MORPHINE.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: The inference to be drawn from Professor Reichert's article on the physiological antagonism between cocaine and morphine (THERAPEUTIC GAZETTE, July 15, 1902) is that Professor Reichert was the first to suggest the value of cocaine as an antidote to morphine. Professor Reichert recites in detail the only case of morphine poisoning on record treated by cocaine, which was published by myself in the *Philadelphia Medical Journal* of December, 1901. This case, although not published until December, was, as a matter of fact, treated in January, 1901—several months before Professor Reichert's suggestion that cocaine might prove antidotal to morphine; the publication of my case was delayed because of my absence in Europe. Moreover, as Professor Reichert will probably recall, I personally told him of my case in the latter part of the winter of 1900-1901 (about February or March, 1901). It is therefore indisputably true that not only was I the first to prove practically the antidotal value of cocaine in morphine poisoning, but I was the first to suggest the physiological antagonism of these two alkaloids and show why this antagonism existed.

Another point of evidence that I had been engaged with the whole subject of morphine and morphine-derivative poisoning before Professor Reichert made his suggestion, is to be found in the fact that for several months in the early part of 1900 I made an elaborate experimental study on animals at the Pharmacologic Institute, University of Heidelberg, and published my results in the *Archiv für Exper. Path. und Pharmakol.*, Bd. xlvi.

Yours truly,
ALBERT C. BARNES.